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JOHNS HOPKINS UNIVERSITY CIRCULARS

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PROGRAMMES FOR 1892-93.

The following courses in literature and science are offered for the academic year which begins October 1, 1892. They are open to properly qualified young men, according to conditions varying somewhat in each department. The Annual Register, giving full statements as to the regulations and work of the University, will be sent on application.

D. C. GILMAN,

President of the Johns Hopkins University.

- H. B. ADAMS**, *Professor of American and Institutional History*,
(a) will conduct the Seminary of History and Politics.
(b) Early Germanic History and Institutional History.
(c) will direct, with assistance, undergraduate courses in History and Politics.
- M. BLOOMFIELD**, *Professor of Sanskrit and Comparative Philology*,
(a) Linguistic Science and Comparative Grammar.
(b) Indo-Iranian Languages.
(c) Ethnological History of the Indo-European Peoples.
- W. K. BROOKS**, *Professor of Animal Morphology*,
(a) will direct the Laboratory work in Morphology.
(b) will lecture on Animal Morphology and Osteology.
- T. CRAIG**, *Professor of Pure Mathematics*,
(a) Mathematical Seminary, Theory of Functions, and Linear Differential Equations.
(b) Partial Differential Equations, Elliptic and Abelian Functions.
(c) Differential Equations.
- A. M. ELLIOTT**, *Professor of Romance Languages*,
will give advanced courses in the Romance Languages, including Linguistic Ethnography, Popular Latin, Dante, French Dialects, and Seminary Work.
- G. H. EMMOTT**, *Professor of Roman Law and Comparative Jurisprudence*,
(a) English Common and Statute Law, Constitutional Law, Sources of English History.
(b) undergraduate course in the English Constitution.
- FABIAN FRANKLIN**, *Professor of Mathematics*,
(a) Modern Mathematics, Theory of Invariants, Theory of Surfaces.
(b) Differential and Integral Calculus, Determinants, Analytic Geometry, etc.
- B. L. GILDERSLEEVE**, *Professor of Greek*,
(a) will direct the Greek Seminary (*The Attic Orators*).
(b) will conduct a course of Practical Exercises in Greek.
(c) will lecture on Greek Syntax.
(d) will lecture on Greek Lyric Poetry.
- E. H. GRIFFIN**, *Professor of the History of Philosophy*,
(a) advanced courses in Modern Philosophy and Ethics.
(b) undergraduate courses in Logic, Psychology and Ethics.

- P. HAUPT**, *Professor of the Semitic Languages*,
(a) will conduct the Assyrian Seminary.
(b) Biblical Philology, Hebrew, Syriac, and Arabic.
- W. S. HALSTED**, *Professor of Surgery*,
will lecture to physicians in the Johns Hopkins Hospital.
- H. M. HURD**, *Professor of Psychiatry*,
will lecture to physicians in the Johns Hopkins Hospital.
- H. A. KELLY**, *Professor of Gynecology*,
will lecture to physicians in the Johns Hopkins Hospital.
- H. N. MARTIN**, *Professor of Biology*,
(a) will direct the Laboratory work in Biology.
(b) Physiology of the Sense Organs and Methods of Physiological Research, for advanced students.
(c) General Biology, Animal Physiology and Histology.
(d) special course in Normal Histology.
- H. N. MORSE**, *Professor of Analytical Chemistry*,
(a) will assist in directing the Laboratory work in Chemistry.
(b) Analytical Methods, Mineralogy and Crystallography, and Chemistry of Carbon Compounds.
- SIMON NEWCOMB**, *Professor of Mathematics and Astronomy*,
(a) will have general direction of the courses in Mathematics and Astronomy.
(b) Spherical and Theoretical Astronomy and Celestial Mechanics.
- WM. OSLER**, *Professor of Medicine*,
will lecture to physicians in the Johns Hopkins Hospital.
- IRA REMSEN**, *Professor of Chemistry*,
(a) will direct the Laboratory work in Chemistry.
(b) Special Topics in Advanced Chemistry.
(c) General Chemistry, Chemistry of Carbon Compounds, etc.
- EDWARD RENOUF**, *Collegiate Professor of Chemistry*,
(a) will assist in the Laboratory work in Chemistry.
(b) will lecture on Inorganic Chemistry.
- H. A. ROWLAND**, *Professor of Physics*,
(a) will direct the work of the Physical Laboratory.
(b) will lecture on Electricity and Magnetism.

MINTON WARREN, *Professor of Latin*,

- (a) will conduct the Latin Seminary (*Plantus and Terence*).
- (b) Roman Comedy, Roman Epigraphy, Latin Syntax, and Historical Latin Grammar.
- (c) Aulus Gellius, Horace.

W. H. WELCH, *Professor of Pathology*,

- (a) will direct the work of the Pathological Laboratory.
- (b) Pathology and Bacteriology.

G. H. WILLIAMS, *Professor of Inorganic Geology*,

- (a) will direct the Laboratory work in Mineralogy and Petrography.
- (b) General Mineralogy and Microscopical Petrography.

HENRY WOOD, *Professor of German*.

- (a) will direct the German Seminary.
- (b) Old High German, Middle High German, Gothic, Teutonic Philology, German Literature, etc.
- (c) will direct, with assistance, undergraduate courses in German.

E. A. ANDREWS, *Associate Professor of Biology*,

- (a) will assist in the Laboratory work in Biology.
- (b) General Biology, Embryology, Mammalian Anatomy, Zoology.

J. W. BRIGHT, *Associate Professor of English Philology*,

- (a) English Seminary.
- (b) English Philology, Phonetics, Selected Texts, Anglo-Saxon.

WM. HAND BROWNE, *Associate Professor of English Literature*,

- (a) English Literature, Middle English, Early Scottish Poets.
- (b) lectures on the Early History of Maryland.

W. B. CLARK, *Associate Professor of Organic Geology*,

- (a) will direct the Laboratory work in Palaeontology.
- (b) General Geology, Palaeontology, and Physical Geography.

L. DUNCAN, *Associate Professor of Electricity*,

- will conduct courses in Electrical Engineering.

E. H. SPIEKER, *Associate Professor of Greek and Latin*,

- (a) Lysias, Homer, Euripides.
- (b) Thukydides, Aischylos, Sophokles.
- (c) Greek Literature and Composition.

C. ADLER, *Associate in Semitic Languages*,

- (a) Biblical Philology, Hebrew, and Ethiopic.
- (b) Biblical History and Archaeology.

W. S. ALDRICH, *Associate in Mechanical Engineering*,
Kinematics and Drawing.

J. S. AMES, *Associate in Physics*,

- (a) undergraduate courses in General Physics.
- (b) Mechanics, Hydrodynamics, and Sound.
- (c) Physical Seminary for advanced students.

G. P. DREYER, *Associate in Biology*,

- (a) will assist in the Laboratory work in Biology.
- (b) Physiological Chemistry, Normal Histology.

S. FLEXNER, *Associate in Pathology*,

- will assist in the work of the Pathological Laboratory.

HERMANN S. HERING, *Associate in Electrical Engineering*,
courses in Electrical Engineering.

M. D. LEARNED, *Associate in German*,

- (a) Middle High German, Nibelungenlied, etc.
- (b) undergraduate courses in German.

J. E. MATZKE, *Associate in Romance Languages*,

- (a) Italian Literature, Spanish Literature, Old French Philology, French Texts.
- (b) special courses in Italian and Spanish.

C. W. E. MILLER, *Associate in Greek*,
courses in Greek.

G. H. F. NUTTALL, *Associate in Bacteriology and Hygiene*,
will assist in the work of the Pathological Laboratory.

C. L. POOR, *Associate in Astronomy*,
courses in Astronomy.

SIDNEY SHERWOOD, *Associate in Political Economy*,

- (a) twenty-five lectures on Money and Banking.
- (b) undergraduate courses in Political Economy.

K. W. SMITH, *Associate in Latin*,

- (a) Livy, Lucretius, Cicero.
- (b) Plantus, Terence, Tacitus.

J. M. VINCENT, *Associate in History*,

- (a) Sources of History and Historical Methods.
- (b) undergraduate courses in History.

W. M. ARNOLT, *Instructor in New Testament Greek*,
courses on the Septuagint, the New Testament, etc.

B. W. BARTON, *Instructor in Botany*,
Plant Analysis and the Elements of Botany.

A. GUDEMAN, *Fellow by Courtesy*,

- History of Classical Philology, Alexandrian Literature, Plutarch's Cicero, Tacitus.

L. S. HULBURT, *Instructor in Mathematics*,

- (a) Synthetic Geometry, Plane Algebraic Curves, Theory of Substitutions, Icosahedron Theory, etc.
- (b) Determinants, Analytic Geometry, Calculus.

C. JOHNSTON, JR., *Instructor in Semitic Languages*.

- Biblical Philology and History, Assyrian, and Arabic.

J. D. PRINCE, *Instructor in Semitic Languages*,
courses in Turkish.

W. W. RANDALL, *Instructor in Chemistry*,
will assist in the work of the Chemical Laboratory.

H. SCHOENFELD, *Instructor in German*,
undergraduate courses in German.

C. A. SMITH, *Assistant in English*,
undergraduate courses in Rhetoric and English Composition.

S. E. WHITEMAN, *Instructor in Drawing*,
courses in Drawing.

PROFESSOR H. C. ADAMS, of the University of Michigan,
twenty lectures on Finance.

DR. FREDERIC BANCROFT, of Washington,
will lecture on American Diplomatic History.

PROFESSOR J. B. CLARK, of Smith College,
twenty-five lectures on the Economic Theory of Distribution.

DR. E. R. L. GOULD, of the U. S. Department of Labor,
fifty lectures on Social Problems.

DR. W. T. HARRIS, U. S. Commissioner of Education,
five lectures on the Philosophy of Education.

HON. JOHN A. KASSON, of Washington, D. C.,
ten lectures on European Diplomacy.

DR. JAMES MACALISTER, of Philadelphia,
five lectures on the History and Institutes of Education.

DR. JAMES SCHOUER, of Boston,
twenty-five lectures on American Constitutional Law.

DR. ALBERT SHAW, of New York,
ten lectures on Municipal Government and Civic Training.

DR. A. G. WARNER, of Washington,
ten lectures on Charities.

PROFESSOR WOODROW WILSON, of Princeton College,
twenty-five lectures on Administration.

MATHEMATICS.

Graduate Courses.

Professor NEWCOMB's courses are announced under the heading of Astronomy, to which the student is referred.

Professor CRAIG offers the following courses:

1. Theory of Functions of One and Two Variables.
Twice weekly, through the year.
2. Mathematical Seminary.
Weekly, through the year.
3. Partial Differential Equations.
Twice weekly, first half-year.
4. Linear Differential Equations.
Three times weekly, first half-year.
5. Elliptic and Abelian Functions.
Twice weekly, through the year.

Professor FRANKLIN offers the following courses:

1. A General Course for Graduate Students on the Elements of Modern Mathematics.
Five times weekly, first half-year.
2. Theory of Invariants.
Twice weekly, second half-year.
3. Metrical Theory of Surfaces.
Three times weekly, second half-year.

Mr. HULBURT offers the following courses:

1. Synthetic Geometry.
Twice weekly, first half-year.
2. General Theory of Plane Algebraic Curves.
Twice weekly, second half-year.
3. Theory of Substitutions with Applications to Algebraic Equations.
Three times weekly, first half-year.
4. Klein's Icosahedron Theory.
Three times weekly, second half-year.

Undergraduate Courses.

FIRST YEAR.

Determinants.

Daily till October 15. Mr. HULBURT.

Analytic Geometry.

Daily till December 23. Mr. HULBURT.

Differential and Integral Calculus.

Daily, January 1 to end of year. Mr. HULBURT.

SECOND YEAR.

Differential and Integral Calculus (Special Topics).

Twice weekly till December 23. Professor FRANKLIN.

Differential Equations.

Twice weekly, January 1 to end of year. Professor CRAIG.

Determinants and Elementary Theory of Equations.

Three times weekly, till December 1. Professor FRANKLIN.

Modern Analytic Geometry of Two Dimensions.

Three times weekly, Dec. 1 to Feb. 1. Professor FRANKLIN.

Analytic Geometry of Three Dimensions.

Three times weekly, Feb. 1 to end of year. Professor FRANKLIN.

Trigonometry and Elementary Analytic Geometry.

Three times weekly, through the year.

ASTRONOMY.

The instruction in Astronomy is given by Professor SIMON NEWCOMB and by an Associate working under his direction. The courses include a study of the various branches of the science, illustrated and enforced by practical exercises, and by original work so far as the time at the disposal of the student will permit it. The work taken by a student depends very largely on whether he is pursuing Astronomy as a principal or as a subsidiary subject. As a general rule those who pursue it with the latter object take up but a single branch: spherical and practical astronomy, when their work lies in the direction of physical or other research requiring the use of instruments; celestial mechanics, when it lies in the direction of mathematics; historical and descriptive astronomy, when only the teaching of general astronomy is in view.

For training students in the use of instruments the University has erected a small students' working observatory and supplied it with the following instruments:

An equatorial telescope of 9½ inches aperture, with clock-work and filar micrometer;

A meridian circle of 3 inches aperture, with circles 2 feet in diameter reading to seconds;

A small meridian transit instrument;

A reflecting circle by Pistor & Martins;

An astronomical theodolite, and several other small instruments.

During the year 1892-1893, the courses are intended to cover a wider range of individual subjects than heretofore, with especial reference to the needs of the first year students, as well as of the advanced students engaged in completing and reviewing their work. The details of the advanced courses are subject to modification according to the number and needs of the students, but are expected to conform closely to the following outline.

1. Elementary Course in Theoretical and Practical Astronomy.
Three times weekly, through the year. Dr. POOR.

This course is intended for students commencing the subject and will embrace the elements of Spherical Astronomy, the theory and use of Astronomical Instruments, the use of the Ephemeris, elementary Gravitational Astronomy, the History of Astronomy, and the first principles of the Method of Least Squares.

2. Advanced Spherical Astronomy and Theory of Instruments.
Three times weekly, first half-year. Professor NEWCOMB and Dr. POOR.

This subject is preliminary to the following one and embraces the general theory of precession and nutation and methods of instrumental research generally.

3. Advanced Theoretical Astronomy.

Three times weekly, second half-year. Professor NEWCOMB and Dr. POOR.

This course will include the computation of Orbits, Special Perturbations, and Ephemerides.

4. Celestial Mechanics.

Twice weekly till April. Professor NEWCOMB.

This course includes the general dynamical theory of the celestial motions, the secular variations of the planetary orbits, and the general perturbations of the planets and of the moon.

5. Astronomical Seminary, especially exercises in Astronomical Computation.

Once weekly, Monday afternoons. Dr. POOR.

6. Practical Work with the Instruments.

Daily at 8 p. m., when the weather permits. Dr. POOR.

7. A course in Descriptive Astronomy for Undergraduates is expected to be given, if circumstances permit.

Attention is called to the necessity that students taking the courses in astronomy should be well prepared in the subjects preliminary to such courses. These are principally mathematics and elementary astronomy. In the former the student should be master of the usual college course, including the elements of solid analytic geometry and of the differential and integral calculus. He should be especially familiar with spherical trigonometry and with logarithmic computation. In astronomy he is expected to have mastered the elements of the subject before commencing the university course. These include an outline of the doctrine of the sphere, of the relation of mean and sidereal time, and of descriptive astronomy generally. What is most essential may be found in so much of Chapters I, III and IV of Newcomb and Holden's *Astronomy* (large edition) as is printed in large type; but it is expected that every candidate for a degree shall be well acquainted with general astronomy.

PHYSICS.

(including Electrical Engineering.)

The courses in Physics are designed (1) for those students prepared for advanced work who wish to make Physics a specialty, (2) for graduate and special students who wish to extend their knowledge of Physics, and for all who take it as a part of their regular undergraduate course, (3) for those who wish to make Electricity a specialty.

Graduates and others who wish to pursue the advanced courses and who have not already had the equivalent of the collegiate courses, will take as much of them as may appear desirable.

Advanced Courses.

Lectures.

Professor ROWLAND:

Electricity and Magnetism.

Four times weekly, through the year.

These lectures constitute one-half of a complete course, extending through two years. The other half consists of lectures on Thermodynamics, Heat Conduction, and Physical Optics. The lectures develop fully the mathematical treatment of the subjects, and to follow them the student should have sufficient mathematical knowledge to read such authors as Maxwell, Thomson, Stokes, Green and Fourier.

Dr. AMES:

Mechanics.

Twice weekly, first half-year.

Hydrodynamics and Sound.

Twice weekly, second half-year.

Physical Seminary.

Weekly, through the year.

Laboratory Work.

Advanced students are expected to give as much of their time as possible to laboratory work. This consists at first in carrying out experiments which familiarize the student with the use of instruments for exact measurement and with experimental methods. When sufficient experience of this kind has been acquired, the student undertakes, under the guidance of the instructors, some research designed to be of permanent value.

Journal Meetings.

All advanced students are expected to meet with the instructors once a week for the reading and discussion of the current physical journals.

The following journals are regularly reported upon in this way: The London, Edinburgh, and Dublin Philosophical Magazine, The American

Journal of Science, Wiedemann's *Annalen* and *Beiblätter*, *Zeitschrift für physikalische Chemie*, *Journal de Physique*, *Annales de Chimie et de Physique*, *Exner's Repertorium*, *Nature*, *Engineering*, *Comptes Rendus*, *London Electrician*, *Electrical World*, *Journal of Franklin Institute*, *Cambridge Philosophical Transactions*; also the proceedings and transactions of various societies.

Collegiate Courses.

These courses are adapted to undergraduates and to those graduate students who wish to extend their knowledge of Physics but are not prepared for more advanced work.

Two years' work is required of those undergraduates who take Physics as one of their elective studies, while only one year is necessary for those who take it as a subsidiary subject for the degree of Bachelor of Arts.

Laboratory work accompanies the lectures and recitations throughout the course, the design of this work being to illustrate the subject as it is studied, to impress its principles, and to give clear ideas, rather than to be merely an exercise in manipulation.

But some knowledge of methods is also attained, so that in the second year problems requiring more experimental skill are given.

First Year (Minor) Course.

This course does not assume that the student has had any previous acquaintance with Physics, but a knowledge of Plane Trigonometry and the use of logarithms is required.

1. Elementary Mechanics, Heat, Electricity and Magnetism, Sound, and Light.

Lectures and recitations daily, through the year. Dr. AMES.

2. Laboratory work, consisting of simple experimental problems supplementing the class-room work.

Three hours weekly, through the year.

Second Year (Major) Course.

This course is designed to meet the wants of both graduates and undergraduates who have already taken either the first years' course or its equivalent, and who wish to pursue further their physical studies. A working knowledge of Analytic Geometry and Calculus is required for admission to this course. The year's work consists of:

1. Lectures and recitations on the following subjects:

Dynamics, beginning with the study of the particle and extending to some of the simpler problems in the motion of a rigid body.

Elementary Thermodynamics, based on Maxwell's Theory of Heat.

Electricity and Magnetism.

Sound.

Wave Theory of Light, as treated in Preston's Theory of Light.

Daily, through the year. Dr. AMES.

2. Laboratory work.

Five hours weekly, through the year.

The laboratory work includes problems that present more experimental difficulties than those undertaken during the first year, or that involve more mathematical knowledge for their complete discussion, written reports being required as in the first year's course. During the year special problems are assigned to the students, which they are expected to work out in a complete manner, taking necessarily more time than is required for the ordinary problems of the course.

ELECTRICAL ENGINEERING.

The course extends through two years and includes instruction in theoretical and applied electricity, steam and hydraulic engineering, machine design, mechanics of engineering, and mechanical drawing. An important feature is laboratory work, to which

much attention is paid, and original investigation is especially encouraged.

The instruction is given by Associate Professor LOUIS DUNCAN, Ph. D., Mr. HERMANN S. HERING, M. E., and Mr. WM. S. ALDRICH, M. E.

The course is primarily intended for graduate students. Students who have received the degree of Bachelor of Arts on completing the Mathematical-Physical group in this University, are well prepared to take up the special studies of electrical engineering. Other students will be examined in mathematics and physics.

Special students who are not ready for the work in electrical engineering, must follow the first year undergraduate courses in mathematics (plane analytic geometry and differential and integral calculus), physics, chemistry, and drawing.

These students must pass an entrance examination covering the matriculation requirements in mathematics, French or German (first division), English, United States history, and science.

First Year.

Applied Electricity.

Three times weekly, through the year. Dr. DUNCAN.

Lectures and examples on so much of the physical and mathematical theory of electricity as is considered useful for application.

Laboratory Methods.

Weekly, through the year. Mr. HERING.

Lectures and recitations on methods of performing experiments and conducting tests.

Applied Kinematics.

Twice weekly, first half-year. Mr. ALDRICH.

Machine design, kinematics of machinery, mechanism of prime movers, and power transmission.

Mechanics of Engineering.

Twice weekly, second half-year. Mr. ALDRICH.

Materials, strength, and proportions of details in structural and machine design, statics and dynamics of machinery.

Mechanical Drawing.

Six hours weekly. Mr. ALDRICH.

Descriptive geometry; machine sketching, designing, technicalities, and graphical methods in kinematics.

Laboratory Work.

Nine hours weekly. Dr. DUNCAN and Mr. HERING.

Exercises are given in fundamental experiments.

Second Year.

Applied Electricity.

Twice weekly, through the year. Dr. DUNCAN.

Theory and design of dynamos and motors, transmission of energy, electric traction, telephone and telegraph, alternating current apparatus, etc.

Steam and Hydraulic Engineering.

Three hours weekly, through the year. Mr. HERING.

Steam boilers, steam engines, and turbines are considered, with especial reference to the requirements of central station work and in accordance with the best modern practice. Steam engine and boiler trials and tests of large stations, as well as the design of central stations for light or power, form important features of the course.

Applied Kinematics.

Twice weekly, first half-year. Mr. ALDRICH.

Kinematics and mechanics of machinery, designing mechanisms and valve gears, the machinery of power transmission.

Mechanical Drawing.

Six hours weekly, through the year. Mr. ALDRICH.

Graphical methods in kinematics and mechanics and central station planning.

Laboratory Work.

Dr. DUNCAN, Mr. HERING, and Mr. ALDRICH.

Second year students are expected to give as much time as possible to laboratory work, which will consist of more advanced work, than in the first year's course. They will be given every encouragement for the undertaking of original research.

Near the close of the year the class will conduct a test of a central station and electric railroad and prepare a complete report on the same.

CHEMISTRY.

The courses in Chemistry are intended to meet the wants (1) of graduate students who make Chemistry their specialty, or who select it as one of their subordinate subjects for the degree of Doctor of Philosophy; (2) of undergraduate students who study Chemistry for general training; (3) of special students, who, for good reasons, have neither received a bachelor's degree nor matriculated at this University. The first and second years' courses cover the ground of General Chemistry, as far as it is possible to do so in the time occupied. Together they form the full course designed for undergraduates. Graduates and special students who have not done an equivalent amount of work will follow such parts of these courses as may seem desirable.

The Chemical Laboratory, recently enlarged, is well equipped and will conveniently accommodate about two hundred students.

Advanced Work.

Laboratory.

Under the direction of Professor REMSEN and Professor MORSE.
Daily, except Saturday, from 9 a. m. to 5 p. m.

The work will consist in a thorough study of analytical methods, making difficult and typical preparations especially of compounds of carbon, and in carrying on investigations on assigned topics.

Lectures.

(a) Selected Topics in Advanced Chemistry, by Professor REMSEN. *Twice weekly, first half-year.*

(b) Compounds of Carbon, by Professor REMSEN. *Five times weekly, second half-year.*

(c) Select Analytical Methods, by Professor MORSE.

(d) Special Topics, under the direction of the Professor of Chemistry, by the Fellows and other advanced workers.—*From fifteen to twenty lectures, second half-year.*

This work, while serving to familiarize students with chemical literature, is intended to aid them in acquiring the art of presenting subjects in the form of lectures before audiences. All those who intend to become teachers of Chemistry are expected to take active part in the work.

(e) Journal Meetings.—The instructors and advanced students will meet twice weekly for the purpose of hearing reports on the principal articles contained in the journals of Chemistry.

The reports are furnished in turn by all who attend the meetings. The journals read and regularly reported on are: *Annalen der Chemie*; *Berichte der deutschen chemischen Gesellschaft*; *Journal of the Chemical Society (London)*; *Journal für praktische Chemie*; *Zeitschrift für analytische Chemie*; *Zeitschrift für physikalische Chemie*; *American Chemical*

Journal; Journal of the Society for Chemical Industry; Bulletin de la Société chimique; Annales de Chimie et de Physique; and occasionally others.

Introductory and Collegiate Courses.

First Year (Minor) Course.

(a) Introduction to General Chemistry.

Lectures and examinations five times weekly through the year by Professor REMSEN and Professor RENOUF.

(b) Laboratory Work.

Five to six hours weekly through the year under the direction of Professor REMSEN, Professor RENOUF, and Dr. RANDALL.

Second Year (Major) Course.

(a) Mineralogy and Crystallography.

Twice weekly, first half-year by Professor MORSE.

(b) Chemistry of the Compounds of Carbon.

Three to five times weekly, second half-year by Professor MORSE.

(c) Advanced Inorganic Chemistry.

Three times weekly, first half year, and twice weekly for part of the second half-year by Professor RENOUF.

(d) Laboratory Work.

Five to six hours weekly through the year under the direction of Professor REMSEN and Professor RENOUF.

GEOLOGY AND MINERALOGY.

The work at present offered in Geology, including Mineralogy and Palaeontology, is designed exclusively for graduate students. It is arranged to meet the wants (1) of those who desire to make these their principal subjects for the degree of Doctor of Philosophy; (2) of those who wish to make one or more of them subordinate subjects. Special arrangements may also be made for graduate students whose time is limited or who desire to devote their attention to particular subjects, without reference to a degree.

The laboratory for Inorganic Geology, including Mineralogy and Petrography, is open daily from 9 a. m. to 5 p. m., under the direction of Professor GEORGE H. WILLIAMS. The work includes crystallography (measuring, calculation, and crystal drawing), physical and general determinative mineralogy, and the microscopical study of the crystalline rocks.

The laboratory for Organic Geology, including Stratigraphy and Palaeontology, is open daily from 9 a. m. to 5 p. m., under the supervision of Associate Professor WILLIAM B. CLARK. The work includes a study of selected materials designed to illustrate the general principles of structural and stratigraphical geology, and the more characteristic fossils chosen with reference to their stratigraphical importance and classification.

In addition to the regular laboratory work required in Geology, students have ample opportunity to do field work, for which the State of Maryland presents unusual advantages.

The rocks of the region west of Baltimore offer many interesting problems relative to both eruptive rocks and the crystalline schists; while the mountains still farther west contain nearly the whole sequence of palaeozoic strata, and the Chesapeake section exposes the richly fossiliferous cretaceous and tertiary beds. Frequent excursions for the examination of these formations will be regarded as an integral part of the required work. Points of interest in the immediate vicinity of Baltimore will be visited on

short Saturday excursions, while a trip of several days' duration will be undertaken, upon the close of the lectures in May, for the purpose of examining the structure and formations of the Appalachians.

Courses of lectures will be given as follows:

(a) On General Mineralogy, by Professor WILLIAMS. *Four times weekly through the year, at 12 m.*

This course embraces crystallography, crystal drawing and projection, physical (especially optical) and general descriptive mineralogy.

It is intended to meet the wants of chemists and also to serve as an introduction to more special work in mineralogy and petrography. There is assumed on the part of the student an elementary knowledge of geometry, optics, chemistry, and blow-pipe analysis.

This course is supplemented by examinations and practical work in crystal drawing and determinative mineralogy during three hours of each week.

(b) On Microscopical Petrography, by Professor WILLIAMS. *Three times weekly between December 1 and April 1, at 10 a. m.*

This course is not intended to cover the entire subject each year, but to deal successively with different phases of it. Last year the petrography of igneous rocks was considered. For the coming year the subjects proposed are the microscopical character of rock-forming minerals and the petrography of the crystalline schists.

(c) On General Geology, by Dr. CLARK, with lectures on certain subjects by Professor WILLIAMS. *Three times weekly through the year, at 9 a. m.*

This course embraces dynamical, stratigraphical, and historical geology, together with an outline of palaeontology.

It is intended to meet the wants of students of other departments who desire to take geology as a subordinate subject, and also to serve as an introduction to more special work in petrography and palaeontology.

The course will be supplemented by examinations and laboratory work in the determination of rocks and fossils. Frequent excursions will be made, upon which reports, illustrated by maps and sections, will be required.

(d) On Palaeontology, by Dr. CLARK. *Twice weekly after Christmas, at 2 p. m.*

(e) On Physical Geography, by Dr. CLARK. *Three times weekly until Christmas, at 12 m.*

This course is required of undergraduates of the first year, and is illustrated by suitable maps, charts, and models.

(f) Geological Conferences. *Weekly through the year.*

At these meetings students are expected to give carefully prepared and illustrated talks on selected geological topics.

(g) Evening readings in Geology. *Weekly through the winter.*

BIOLOGY.

The courses in Biology are designed (1) for students who desire to make Animal Physiology or Animal Morphology a subject of advanced study and research; (2) for students who take Animal Physiology and Animal Morphology as principal or subordinate subjects for the degree of Doctor of Philosophy; (3) for graduates in medicine who desire a laboratory course in Normal Histology or Physiology as preparatory to laboratory courses in Pathology or Pathological Histology; (4) for undergraduates who desire some knowledge of the biological sciences for the sake of general culture; (5) of undergraduates who desire to prepare themselves for the study of medicine.

The biological laboratory is well equipped for research and teaching in the above subjects: it contains rooms specially designed for advanced work in chemical physiology, physiological optics, vivisections, histology, and embryology. The marine laboratory,

open during part of the summer, has no definite location; each year a place likely to provide abundant research material is selected, and the necessary equipment provided by the University.

Advanced Work.

LABORATORIES.

The Biological Laboratory will be open daily during the session, except on Saturdays, from 9 a. m. to 5 p. m., under the direction of Professors MARTIN and BROOKS. The site of the Marine Laboratory for the summer of 1893 has not been selected; the laboratory will probably be open during July and August for students engaged in research under the direction of Professor BROOKS.

LECTURES.

1. Physiology of the Sense Organs. Professor MARTIN.

Weekly.

2. Physiological Chemistry. Dr. DREYER.

Weekly.

3. The Methods and the Apparatus of Physiological Research.

Professor MARTIN, with the cooperation of several members of the staff of the Johns Hopkins Hospital; fellows and advanced students will also be required to deliver some of the lectures in this course. *Weekly.*

4. Animal Morphology. Professor BROOKS.

Professor BROOKS will lecture once a week to the special students in Animal Morphology on the structure, development, and phylogeny of Echinoderms, Arthropods and Tunicates.

In connection with this course of lectures there will also be two meetings of the Morphological Seminary each week to read, in course, selected memoirs and text books on the subject of the lectures.

5. A Journal Club.

Composed of the instructors and advanced students, will meet weekly for the reading and discussion of recent biological publications.

6. Library Facilities.

The laboratory contains a library supplied with standard biological works and complete sets of the more important journals.

The general library of the University receives all the chief journals of general science, and the transactions of the leading learned societies of the world.

The library of the Peabody Institute, within five minutes' walk of the University, contains complete sets of many of the chief biological journals, of the proceedings of learned societies, and other works of reference.

In the libraries of the Medical and Chirurgical Faculty of Maryland and the Johns Hopkins Hospital a large number of medical periodicals are accessible to members of the University.

COLLEGIATE INSTRUCTION.

This is designed especially for undergraduate students; but graduate students who have not had a thorough preliminary training will be required to follow the instruction in those subjects of the undergraduate course in which they may be deficient.

Special students, who are not graduates or matriculates, may be received on giving satisfactory evidence that they are likely to be benefited by the course.

The regular undergraduate instruction in normal biology extends over two years, following one year's training in Physics and Chemistry; those who take Biology as a subsidiary subject for the B. A. degree, are required to do only the first year's work in that subject.

First Year (Minor) Course.

This has been planned to meet the needs (1) of those who intend later to take up some one branch of Biology for special study; (2) of students, graduate or undergraduate, who expect to study medicine but, meanwhile, desire, as a valuable preparation, some general knowledge of the phenomena, laws, and conditions of life; (3) of those who desire as a part of their general college training some acquaintance with the methods of modern experimental and observational science, and select Biology as a study with that end in view.

The course consists of five lectures or recitations weekly, with laboratory work. The following subjects are included in the year's work:

1. General Biology.

Three lectures or recitations weekly from the commencement of the session until the end of March. Professor MARTIN and Dr. ANDREWS.

Attention is directed to the broad characteristic phenomena of life and living things rather than to the minutiae of descriptive botany or zoölogy, or to the characters of orders, genera, and species. In the laboratory the student learns how to observe, how to verify and describe what he observes, how to dissect, and how to use a microscope; he examines selected vegetable and animal types from unicellular organisms, such as the yeast-plant and Amœba, to the fern and the flowering plant on one side and to the crayfish and a bird on the other. In the lecture room attention is mainly given to the fundamental biological facts and laws which the particular plant or animal under consideration is fitted to illustrate, the object being rather to give the student an idea of what is meant by the terms living thing, plant, animal, tissue differentiation, life history, organ, function, natural classification, evolution, development, etc., than to teach him the elements of Botany and Zoölogy as frequently understood.

2. The Elements of Embryology.

Three lectures or recitations weekly from the beginning of April until the close of the session, with practical study of the development of the frog and the chicken. Dr. ANDREWS.

3. Osteology, Human and Comparative.

Two lectures or recitations weekly until the end of March, with practical study of selected skeletons. Professor BROOKS.

4. Plant Analysis and the Elements of Systematic Botany.

Lectures and practical instruction twice weekly from the beginning of April until the close of the session. Dr. BARTON.

Second Year (Major) Course.

This is designed for those who, having completed the above minor course, desire to continue biological studies. Ultimately the second year's work in biology will be, at the choice of the student, one of three courses: in the first of these Animal Physiology will be the dominant study; in the second, Animal Morphology; in the third, Botany. For the present a choice can be offered only between the first and second of the three.

1. Mammalian Anatomy.

Five lectures weekly for one month, with five hours laboratory work each week. Dr. ANDREWS.

In connection with this course the student dissects one of the higher mammals.

2. Animal Physiology and Histology.

Three times a week from early in November until the close of the session. Professor MARTIN.

In this course the microscopic structure of the organs is considered in connection with their functions. The student is instructed in the use of staining and embedding reagents, and in the technique of section-cutting and mounting. He also studies in the laboratory the chemical composition of the more important constituents of the body; the physiological proper-

ties of muscle and nerve; the chemistry of digestion and of the secretions; the phenomena of the circulation; reflex actions; the properties of the sense organs; and so forth. Most of the laboratory work the student is required to do himself, but demonstrations of important physiological phenomena requiring special skill or the use of delicate apparatus are given weekly.

3. General Zoölogy.

Twice weekly, from early in November until the close of the session. Dr. ANDREWS.

This course, based on the work of the minor course, is designed to give the student a knowledge of the structure of the chief groups of animals.

Special Course.

A course of practical instruction in Normal Histology will be given by Professor MARTIN and Dr. DREYER during October and November.

This course is designed for graduates in medicine who desire to prepare themselves for the practical study of Pathological Histology, and will occupy two hours on three afternoons in each week. If there be sufficient demand, it will be repeated in the spring of 1893. The fee for the course is fifteen dollars.

GREEK.

GREEK SEMINARY.

Professor GILDERSLEEVE will conduct the Greek Seminary, the plan of which is based on the continuous study of some leading author or some special department of literature.

The Seminary consists of the Director, Fellows, and Scholars, and such advanced students as shall satisfy the Director of their fitness for an active participation in the work by an essay, a critical exercise, or some similar test of attainments and capacity. All graduate students, however, may have the privilege of attending the course.

During the next academic year the study of *The Attic Orators* will constitute the chief occupation of the members. There will be two meetings a week during the entire session. Especial attention will be paid to the development of language and style and to the antique canons of aesthetic criticism. The rhetorical works of Dionysios of Halikarnassos will be studied in connection with this course.

The student should possess the text of the orators (Teubner ed.), and the rhetorical works of Dionysios of Halikarnassos, Vols. V and VI of the Tauchnitz (Holtze ed.). Blass's *Geschichte der Attischen Beredsamkeit* is an indispensable auxiliary.

ADVANCED AND GRADUATE COURSES.

1. Professor Gildersleeve will also conduct a course of Practical Exercises in Greek, consisting chiefly in translation at dictation from Greek into English and English into Greek, two meetings a week, from the beginning of the session to the first of January.

2. He will lecture on Greek Lyric Poetry, with illustrative readings, once a week after January 1.

3. He will also lecture on the Hypotactic Sentence, in continuation of the course on Greek Syntax in its relation to style. In connexion with this course special points in Greek Syntax will be assigned for investigation and discussion.

4. Arrangements will be made under Professor Gildersleeve's general superintendence for competent guidance of the private reading of advanced students.

Notice of other courses is reserved.

Dr. ALFRED GUDEMAN will conduct the following courses:

5. History of Classical Philology, during the first half-year.

6. History of Alexandrian Literature, during the first half-year.

7. Plutarch's Life of Cicero, with special reference to the sources, during the second half-year.

Dr. W. M. ARNOLT will conduct the following courses:

8. Origin and History of the Septuagint, and the other Greek Versions of the Old Testament (including the Apocrypha).

9. Textual Criticism and Hermeneutics of the New Testament.

10. St. Paul's Epistle to the Galatians—critical introduction and exegesis.

UNDERGRADUATE COURSES.

Associate Professor SPIEKER will conduct the undergraduate courses in Greek as follows:

1. Lysias, *Select Orationes*.

Four times weekly, first half-year.

Private Reading: Xenophon, *Hellenica*, books i, ii.

2. Homer, *Iliad*, three books; Euripides, *one play*.

Four times weekly, second half-year.

Private Reading: Herodotus, *one book*.

3. Thukydides, *one book*.

Three times weekly, first half-year.

Private Reading: Plato, *Gorgias*.

4. Aischylos, *one play*; Sophokles, *one play*.

Three times weekly, second half-year.

Private Reading: Aristophanes, *one play*.

5. Prose Composition.

Weekly exercises in connection with each of the above courses.

6. Conferences on Greek Literature, with select readings from the elegiac, iambic, and lyric poets.

Weekly, through the year.

7. Sight Reading.

A voluntary course, weekly, through the year.

LATIN.

I. LATIN SEMINARY.

Professor WARREN will conduct the Latin Seminary. During the next academic year, the centre of work will be the plays of *Plautus and Terence*. There will be two meetings a week during the entire session, devoted to the critical interpretation of these authors, to various auxiliary studies, and to the presentation of papers prepared by members of the Seminary.

Students are advised to provide themselves in advance with Umpfenbach's critical edition of Terence (Berlin, 1870), or Dziatzko's complete text edition (Tauchnitz, Leipzig, 1884). The annotated editions of the *Andria* and *Adelphoe* by Spengel and of the *Phormio* and *Adelphoe* by Dziatzko will also be found useful, as well as the edition of Terence by Klotz (2 vols., 1838-40, Leipzig), which contains the commentaries of Donatus and Eugraphius. For Plautus the annotated editions by Brix of the *Trinummus*, *Captivi*, and *Menaechmi*, and by Lorenz of the *Miles Gloriosus*, *Pseudolus*, and *Mostellaria*, and the critical edition of the *Miles Gloriosus* by Goetz (Leipzig, Teubner, 1890), are recommended.

II. ADVANCED AND GRADUATE COURSES.

1. During the first half-year, Professor WARREN will give a course of weekly lectures on subjects intimately connected with

the work of the Seminary, such as the history of Roman Comedy, the metres of Plautus and Terence, and the peculiarities of early Latin Syntax.

2. He will also lecture on Roman Epigraphy, and conduct a series of weekly exercises in the interpretation of Latin inscriptions, especially those of an early period.

E. Schneider's "Dialectorum Italicarum Aevi Vetustioris Exempla Selecta" (Leipzig, Teubner, 1886) will be used as a basis.

3. Throughout the year he will lecture once a week on Historical Latin Grammar.

4. During the second half-year, he will read Aulus Gellius with a class, once a week.

5. A Journal Club will meet regularly to report on the current philological periodicals containing articles of interest to latinists.

6. Dr. ALFRED GUDEMAN will conduct a course in Tacitus, *Dialogus*, with introductory lectures on the "Dialogus Controversy," during the second half-year.

III. UNDERGRADUATE COURSES.

1. Livy, *two books*.

Four times weekly, first half-year. Dr. K. W. SMITH.

Private Reading: Cicero, *pro Roseio Amerino*; Quintus Curtius, *book iv*.

2. Horace, *Select Odes, Satires, and Epistles*.

Four times weekly, second half-year. Professor WARREN.

Private Reading: Horace, *Epodes*; Ovid, *Fasti*, *books i and ii*.

3. Plautus, *Captivi*; Terence, *Andria*.

Three times weekly, first half-year. Dr. K. W. SMITH.

Reading at Sight.

One hour weekly.

Private Reading: Plautus, *Menaechni*; Terence, *Heautontimorumenos*.

4. Lucretius, *books i and iii*; Cicero, *de Natura Deorum*, *book i*.

Three times weekly, second half-year. Dr. K. W. SMITH.

Reading at Sight.

One hour weekly.

Private Reading: Cicero, *de Natura Deorum*, *book iii*; Lucretius, *book v*.

5. Prose Composition.

Weekly exercises in connection with each of the above courses.

6. Tacitus, *Agricola*, *Germania*, and *one book of the Annals*.

Four times weekly, second half-year. Dr. K. W. SMITH.

SANSKRIT AND COMPARATIVE PHILOLOGY.

The following courses will be given by Professor MAURICE BLOOMFIELD:

A. Linguistic Science, Ethnological History, and Comparative Grammar.

1. The Elements of Linguistic Science, together with an exposition and criticism of methods in scientific grammar.

Weekly, through the year.

2. Elementary Comparative Grammar of Greek and Latin:

The history of the vowels and the vowel-systems (*ablaut*) with special reference to the vocalic system of the Germanic languages.

Weekly, through the year.

Note.—No knowledge of Sanskrit is required for either of the two courses indicated above. The first course sketches briefly the history of the Science of Language; presents a short analysis of the principal Indo-European languages; and deals with the fundamental questions of change in language and the origin of language. It is designed to outline the general principles involved in the historical study of language in general. The second course is intended as an introduction into the most elementary methods and results of the comparative grammar of the classical languages by treating carefully and simply one chapter of the subject.

3. Introduction to the Ethnological History of the Indo-European Peoples, with especial reference to the ethnic character of modern European States.

Twelve lectures, one hour weekly, beginning in October, 1892.

The themes treated will be as follows: The relation of ethnology to history; the Aryan people, its primitive home and common character; India, the Vedas, Brahmanism, Buddhism; the Zoroastrian religion and literature; classical Persian literature; the Aryan peoples on the boundary between Asia and Europe; Greece and the Hellenic tribes; the Italic tribes (Oscans, Umbrians, Etruscans), and the spread of the Latin race through Southern Europe; the Celts, with especial reference to their influence upon civilization in mediæval Europe; the Germanic people, Germanic mythology, early Germanic literature; the blending of Germanic nationality with surrounding peoples; the Baltic nations; ancient Prussia; the Slavic peoples; retrospective survey of the individual nations of Europe with reference to their ethnical composition; the non-Aryan peoples of Europe.

B. Indo-Iranian Languages.

4. Vedic Seminary: Critical study of the Rig-Veda and the Atharva-Veda with reference to the remaining Vedic literature.

Weekly, through the year.

Note.—In the study of the Vedic hymns the accessory literature of the Brāhmanas and Sūtras is consulted in accordance with the methods which have been elaborated in the seminary within recent years. The Vedic Seminary will also take part in the composition of a concordance of the hymns and sacrificial formulas of the literature of the Vedas which was begun last year.

5. Introduction to Zend and the Zend-Avesta.

Weekly, through the year.

6. Readings in the Hitopadeśa, Kathāsaritsāgara, and Manu. (Second year's course).

Twice weekly, first half-year.

7. Introduction to the Elements of Vedic Study. (Second year's course).

Twice weekly, second half-year.

8. Elementary course in Sanskrit: grammar; prose writing; interpretation of easy texts.

Twice weekly, through the year.

ORIENTAL SEMINARY.

The various courses offered in the Oriental Seminary are adapted to the requirements of four classes of students:

(a) Students of theology wishing to obtain a thorough acquaintance with the sacred tongue and its sister idioms as a means of elucidating Scripture and problems of the comparative history of religion.

(b) Students of linguistics intending to make comparative grammar of the Semitic languages their specialty.

(c) Students of Oriental history and archaeology desirous of drawing directly from the original sources.

(d) Persons looking for instruction in the living Oriental languages (as Modern Arabic or Turkish) for practical purposes.

Most of the teaching is not given by formal lectures, but under seminary organization, the student being from the first brought face to face with the several idioms, without long theoretical introduction. Special stress is laid on a thorough grammatical training, imparted in connection with the minute philological analysis of some selected text in the respective languages, printed grammars serving only for occasional reference.

The centre of the work is the Old Testament, particular attention being paid to the critical study of Biblical texts and the cuneiform inscriptions bearing on the Scriptures.

A special room has been set apart containing a well equipped working library of all the branches of Oriental research.

The following courses will be given by Professor HAUPT, assisted by Dr. ADLER, Dr. JOHNSTON, Dr. PRINCE, and Dr. ARNOLT.

Biblical History and Archæology.

1. History of the Ancient East.
(Egypt, Babylonia, Assyria, Media, Persia). Dr. JOHNSTON. *Weekly.*
2. History of Israel with special reference to the period of the Exile.
Dr. ADLER. *Weekly.*
3. Biblical Antiquities :
Manners, customs, and institutions of the Ancient Hebrews. Dr. ADLER. *Weekly.*

Biblical Philology.

4. Elementary Hebrew.
Gesenius-Mitchell's Grammar, and reading of the Pentateuch. Dr. ADLER. *Weekly.*
5. Hebrew Exercises.
Reading at sight selected chapters of the historical Books. Dr. ADLER. *Weekly.*
6. Hebrew Prose Composition.
Practical exercises in translating from English into Hebrew. Professor HAUPT. *Bi-weekly, Monday, 5 p. m.*
7. Critical Interpretation of the Prophets Haggai and Zechariah.
Professor HAUPT. *Monday, 3 p. m.*
8. Messianic Psalms.
Professor HAUPT. *Monday, 4 p. m., during the first half-year.*
9. Post-Biblical Hebrew.
The Mishnic Tract *Aboda-Zara* (ed. Strack, Berlin, 1888). Dr. ADLER. *Weekly.*
10. The Targumic Version of the Psalms.
Dr. ADLER. *Weekly.*
11. The Septuagintal Version of the Psalms.
Dr. JOHNSTON. *Weekly.*
12. Origin and History of the Septuagint, and the other Greek Versions of the Old Testament (including the Apocrypha).
Dr. ARNOLT. *Weekly.*
13. Textual Criticism and Hermeneutics of the New Testament.
Dr. ARNOLT. *Weekly.*
14. St. Paul's Epistle to the Galatians.
Critical introduction and exegesis. Dr. ARNOLT. *Weekly.*

Assyriology.

15. Assyrian Seminary.
Cursory reading of Rawlinson's *Inscriptions*, vol. IV. Professor HAUPT. *Two hours weekly. Thursday, 10 a. m. to 12 m.*
16. Assyrian (second year's course).
Interpretation of selected historical texts. Dr. JOHNSTON. *Twice weekly.*
17. Assyrian for beginners.
Dr. JOHNSTON. *Twice weekly.*

Syriac.

18. Syriac grammar, and reading of the Peshitâ version of the New Testament.
Professor HAUPT. *Thursday, 12 m.*

Ethiopic.

19. Dillman's *Chrestomathia Aethiopica*.
Dr. ADLER. *Weekly.*

Arabic.

20. Arabic for beginners.
Dr. JOHNSTON. *Weekly.*
21. Arabic Prose Composition.
Professor HAUPT. *Bi-weekly. Monday, 4 p. m.*

Turkish.

22. Turkish (Osmanli), for beginners.
Dr. PRINCE. *Weekly.*

GERMAN.

Graduate Courses.

Professor WOOD will conduct the following courses :

1. Old High German.

Twice weekly, first half-year.

The chief object of the course is the comparative study of the phonology and dialectology of Old High German, as supplying a basis for the history of the German language. Some knowledge of the principles of Old High German grammar is desirable as a preparation. (Braune, *Althochdeutsche Grammatik*, 2 Auflage, 1891.) A series of the less extended monuments, representing all the varieties of Old High German, will be interpreted and compared in their language relations. The texts will be taken from Müllenhoff und Scherer's *Denkmäler*, 3 Ausgabe, hrsg. Steinmeyer, 2 Bände, 1892.

2. Middle High German.

Weekly, first half-year; three times weekly, second half-year.

The works of Walther von der Vogelweide will be studied, with the second edition of Wilmanns (Halle, 1883) as a basis. Some previous study of Middle High German grammar is essential for this course. It is desirable, though not necessary, that the members of the class should have read at least part of the poems in 'Minnesangsfrühling,' as Walther will be compared with his predecessors, both as to literary art and poetical technic.

NOTE.—Courses 1 and 2 will form the work of the German Seminary during the year 1892-93. There will be an additional meeting of the Seminary, once in two weeks, at which the members will be expected to present, in turn, papers upon subjects to be determined on after consultation.

3. Gothic.

Twice weekly, through the year.

The study of both German and English Philology properly begins with this course. The Gothic inflections are first learned, after which the chief linguistic relations of Gothic to the other members of the Teutonic group of languages are explained, and the texts in Braune's *Gotische Grammatik* (3 Auflage, 1887) are read. For Gothic Syntax, the following works are used as a basis: T. Le Marchant Douse's *Introduction to the Gothic of Ulfilas* (London, 1886), and G. H. Balg's *First Germanic Bible*, 1891. For etymological study, each member of the class should provide himself with Kluge, *Etymologisches Wörterbuch der deutschen Sprache*.

4. Outlines of Teutonic Philology.

Weekly, through the year.

This study is an extension of the course in Gothic. The Teutonic dialects will be considered, as a group, in their more primitive relations, the special object of the course being to impart a knowledge of the most essential changes by which the different languages of the group were differentiated from the primitive speech type and from each other. The steps by which the forms of the German language were evolved will then receive attention.

5. The period of 'Sturm und Drang' in German Literature. Lectures and Readings.

Twice weekly, first half-year.

The object of the course is to supply a basis for the study of Goethe's first period (1770-1775). The treatment on the part of the 'Stürmer und Dränger' of their most characteristic themes (Faust, Prometheus, etc.) will accordingly be considered, and the Faust-versions and Faust-fragments of Lessing, Lenz, Maler Müller, and Klinger will form the chief subjects for the readings.

6. The Swabian School of Poetry.

Weekly, second half-year.

The period from Uhland to Mörike will be considered in its chief representatives. Special attention will be given to the relation of the Swabians to the Austrian poets (Lenan, etc.), as well as to 'Young Germany' and Heine.

Dr. LEARNED will give the following courses :

7. Middle High German.

Weekly, through the year.

The inflections will be studied in Paul's *Grammatik*, 3 Auflage, 1889, with constant reference to Brandt's Grammar for the historical development of Middle High German forms. Hartman's *Armer Heinrich* (ed. Wackernagel-Toischer, Basel, 1885) will then be read.

8. Nibelungenlied.

Twice weekly, first half-year.

In this course the Nibelungenlied will be interpreted with reference to the origin and growth of the Popular Epic. Among the questions to be discussed are the historical and mythical elements of the epic, the origin of epic lays, the form of the Popular Epic, compared with the Court Epic, the transmission of the Nibelungenlied, the relations of the manuscripts and the influence of the poem upon the later epics of the thirteenth century.

9. History of Middle High German Speech.

Twice weekly, second half-year. Lectures.

The period from the eleventh to the fourteenth century will be embraced in this course. The following subjects will be treated: the development of court poetry as influencing the language of literature; the influence of French; the attitude of court poetry towards popular speech; the political and literary relations of Upper and Lower Germany; the Middle High German literary language and the dialects; the use of German in place of Latin in official documents; the development of Middle High German prose, and the rise of the 'Kanzleisprache.'

Undergraduate Courses.

Major Course.

1. Classics.

Goethe, *Hermann und Dorothea*, *Faust*. *Twice weekly.* Professor WOOD and Dr. LEARNED.

2. Prose Readings.

Freytag, *Aus dem Mittelalter*. *Weekly.* Dr. LEARNED.

3. History of German Literature.

Kluge, *Geschichte der deutschen Nationallitteratur*. *Weekly.* Dr. SCHOENFELD.

4. Prose Composition.

Buchheim, with Wilmanns' *Deutsche Schulgrammatik*, 2 Theil. *Weekly.* Dr. LEARNED.

5. Private Readings.

Voss, *Luise*; Schiller, *Wallenstein*.

Minor Course A.

1. Classics.

Schiller, *Wilhelm Tell*; Goethe, *Egmont*; Heine, *Harzreise*. *Twice weekly.* Dr. LEARNED.

2. Prose Readings.

Briefwechsel zwischen Schiller und Goethe. *Weekly.* Professor WOOD.

Freytag, *Aus dem Staat Friedrichs des Grossen*. *Weekly.* Dr. SCHOENFELD.

3. Prose Composition.

Whitney's *Grammar, Exercises, 2d Series*. Dr. LEARNED.

4. Private Readings.

Schiller, *Des Grafen Lamoral Egmont Leben und Tod* (in Schiller's *Historische Skizzen*, ed. Buchheim, Clarendon Press), *Die Jungfrau von Orleans*.

Minor Course B.

Class-work.

1. Otis' *Elementary German*; Buchheim's *Modern German Reader, Part I*; Schiller, *Wilhelm Tell*; Goethe, *Egmont*. *Four hours weekly.* Dr. SCHOENFELD.

2. Prose Composition: Whitney's *Grammar, Exercises, 1st Series*. *Weekly.* Dr. LEARNED.

Special Courses.

1. Historical German.

Three times fortnightly. Dr. SCHOENFELD.

Freytag, *Aus dem Staat Friedrichs des Grossen*; Mehlis, *Der Rhein im Mittelalter*; other selected works.

2. Scientific German.

Three times fortnightly. Dr. SCHOENFELD.

Helmholtz, *Ueber Goethe's Naturwissenschaftliche Arbeiten* (ed. Seidensticker); Cohn, *Ueber Bakterien* (ed. Seidensticker); Alex. v. Humboldt, *Auswahl aus seinen Werken*. Stuttgart (Cotta).

Classes 1 and 2 are intended for graduate students in any department of study, who possess an elementary knowledge of German and wish to acquire fluency in reading.

3. German Conversation.

Twice weekly. Dr. SCHOENFELD.

This course is open to graduate and undergraduate students in any department, who show their fitness for it. Graduate students in German will be expected to enter this class, unless their command of German is already satisfactory.

4. Lectures on Germany.

Dr. SCHOENFELD will deliver five class lectures on subjects connected with German history and culture.

ENGLISH.

Dr. JAMES W. BRIGHT will conduct the following courses :

1. The English Seminary.

Three central themes will be successively studied. The first third of the year will be given to an investigation of the Benedictine Reform and to the Literature of Ælfric's Period. The *Beowulf* will occupy the second third of the year, and the last topic will embrace the works of Chaucer, Langland, and Wyclif.

Four hours weekly.

2. Lectures on the History of English Philology, and on special chapters in English Philology.

Weekly, through the year.

3. Lectures on the Elements of Phonetics.

Weekly, second half-year.

4. The Interpretation of Selected Texts.

Twice weekly, through the year.

5. Journal Meetings.

Weekly (or once in two weeks), through the year.

6. Anglo-Saxon.

Bright's *Anglo-Saxon Reader*, and Sievers' *Anglo-Saxon Grammar* (translated by Cook).

Twice weekly, through the year.

Dr. WM. HAND BROWNE will conduct the following courses:

7. The "Classical" Period of English Literature.

Weekly, through the year.

8. Early Scottish Poets.

Early Scottish Poetry from Barbour (1350) to Lindsay (1550) will be studied with the aid of a chrestomathy especially prepared for this class. The readings will be supplemented by a concurrent course of historical and critical lectures.

Weekly, through the year.

9. Lectures on Selected Periods of English Literature.

(a) Elizabethan Literature.

(b) The Revolutionary Movement of the Nineteenth Century.

Twice weekly, through the year.

10. Middle English.

Morris and Skeat's "Specimens of Early English" will be used as the text-book.

Twice weekly, through the year.

11. Lectures on the History of the Middle English Period.

Alternate weeks, through the year.

12. English Literature (General).

The Morley-Tyler "First Sketch of English Literature" will be used as the text-book.

Twice weekly, through the year.

13. Essays.

Essays by the students on subjects connected with their studies will be read and commented on in class.

Alternate weeks, through the year.

Mr. C. A. SMITH will give instruction to undergraduates in Rhetoric and English Composition.

Twice weekly, through the year.

[Note.—Numbers 6, 8, and 9 constitute the Major Course in English; 10 to 13, the Minor Course.]

LECTURES ON LITERATURE.

An announcement will be made later of the third course of the Percy Turnbull Memorial Lectures on Poetry. Lectures on English Literature will also be given on the Caroline Donovan Foundation.

ROMANCE LANGUAGES.

Advanced Courses in Romance Philology.

Professor ELLIOTT.

(a). Seminary.

The Fables of Marie de France; Work on Manuscripts. *Three hours weekly.*

(b). Popular Latin. *Weekly.*(c). Lectures on Dante. *Weekly, first half-year.*(d). Linguistic Ethnography of France and Italy. *Weekly, second half-year.*(e). French Dialects. *Weekly.*

Dr. MATZKE.

Italian Literature. *Weekly.*

The *Romanzo Cavalleresco*.

Spanish Literature. *Weekly.*

The Beginnings of the Spanish Drama.

With first year students.

1. Old French Philology.

(a). Lectures on Old French Phonology and Morphology; Schwan, *Grammatik des Altfranzösischen*; Suchier, *Le Français et le Provençal*, traduit par P. Monet. *Two hours weekly.*

(b). Practical exercises based on *Aucassin et Nicolette*, ed. Suchier. *Weekly.*

2. Interpretation of Old French Texts.

Constans, *Chrestomathie de l'Ancien Français*. 2d edition. *Cligès*, Foerster's edition. *Two hours weekly.*

Special Courses in Italian and Spanish.

Dr. MATZKE.

1. Italian.

Grandgent's *Italian Grammar and Composition*; Goldoni, *Gl' Innamorati*; Grossi, *Marco Visconti*; Dante, *Divina Commedia*. *Three hours weekly.*

2. Spanish.

Knapp's *Spanish Grammar and Readings*; Caballero, *La Familia de Alveda*; Calderon, *La Vida es Sueño*. *Two hours weekly.*

The combined courses in Italian and Spanish may be pursued as a major course by undergraduates, who have taken the minor course in French.

Undergraduate Courses in French.

I. First Year (Minor) Course.

Class A.

1. Contes; Novels; Drama.

Historiettes Modernes, II, ed. Fontaine; Choix d'Extraits de Daudet; Sand, *La Mare au Diable*; Balzac, *Eugénie Grandet*; Corneille, *Polyeucte*; Hugo, *Hernani*. *Two hours weekly.*

2. Modern French Comedy.

Labiche, *Le voyage de M. Perrichon*; Augier, *Le gendre de M. Poirier*; Pailleron, *Le monde où l'on s'ennuie*; Coppée, *Le Luthier de Crémone*. *Weekly.*

3. History of French Literature (XVII-XIX centuries). *Weekly.*

4. Prose Composition and Idioms.

Whitney's Grammar, Part II, and Exercises based on *L'Abbé Constantin*, ed. Grandgent. *Weekly.*

Class B.

For undergraduates who have matriculated in Greek, and for graduates beginning French. *Five hours weekly.*

II. Second Year (Major) Course.

1.—(a). Classical Tragedy.

Rapid reading of Corneille, Racine, and Voltaire. *Weekly, first half-year.*

(b). Classical Comedy.

Rapid reading of Molière, Regnard, and Piron. *Weekly, second half-year.*

2. The Study of the Romantic Movement.

Hugo, *Notre Dame de Paris*, *Ruy Blas*; Modern French Lyrics. *Two hours weekly.*

3. History of French Literature from the beginnings to the XVII century. *Weekly.*

4. Prose Composition.

Critical study of idioms. *Weekly, first half-year.*
Original essays. *Weekly, second half-year.*

HISTORY AND POLITICS.

Advanced Instruction.

Professor HERBERT B. ADAMS has general direction of the work in History and Politics. He gives each year two courses, one representing some field of ancient politics and the other some field of modern politics. The three years' curriculum may be entered at the beginning of any half-year's course. The lectures are accompanied by prescribed courses of private reading and by written examinations at stated intervals.

HISTORY.

For 1892-93 the following courses are announced:

Professor H. B. ADAMS offers:

1. History and Politics.

Two hours fortnightly, throughout the year.

The Seminary of History and Politics is a co-operative society composed of the instructors, associates, Fellows, scholars, and graduate students in this department, for the encouragement and promotion of original investigation in American, institutional, educational, economic, and social history. Subjects are assigned by the Director to individuals for private research and public report in the Seminary. These reports of progress are discussed, criticised, and often referred to committees for further report. The results finally attained may be embodied either in theses submitted for the degree of Doctor of Philosophy, or in other papers, and published in the Historical Studies or elsewhere.

2. Early Germanic History and Sources.

Two hours weekly, first half-year.

This course treats of Germanic ethnology, the migrations of peoples, relations between Rome and the Northern nations, and the foundation of Germanic state life, together with Germanic institutions, federations, and survivals. Special consideration will be given to the sources of early European history.

3. English and American Institutional History.

Two hours weekly, second half-year.

The continuity of Germanic life and institutions in England and America will be illustrated, particularly in local and federal forms. Particular attention will be paid to American colonial history and to historical sources.

Note.—In the two following years, Professor Adams expects to discuss the origin of Greek institutions and the history of Roman politics;—and likewise in successive years the history of Prussia, and the modern history of France.

Professor EMMOTT will give the following courses:

4. The History and Development of the Common and Statute Law of England.

Two hours weekly, through the year.

The lectures on this subject will trace the outlines of the history of the Laws of England, and set forth their leading principles, showing how those laws were until recently administered by distinct tribunals, the Courts of Common Law and the Court of Chancery, and pointing out the limits of their respective jurisdictions.

The course will commence with an examination of the effects of the Teutonic settlement in England, and of the Laws and Customs of the Anglo-Saxons relating to property, together with an account of the judicial institutions of the Anglo-Saxons and of the Anglo-Saxon vassalage. It will then treat of the Sources of the Feudal System, of the origin of Feudal Vassalage, and the effects of the Norman Conquest upon the pre-existing laws and institutions of England, and will comprise a statement of the origin, sources, and leading principles of the Common Law of England. The history of early Criminal Law, of Torts, of Contracts, and of Successions will also be treated of, and the rise and development of Statute Law in reference to these topics will be carefully traced.

5. English Constitutional Law and History.

Three hours weekly, first half year.

The origin and development of the English Constitution and of the fundamental principles of English constitutional law will be carefully and systematically traced in chronological order from the earliest settlements in Britain down to the present time. Taswell-Langmead's English Constitutional History will be used as containing an outline sketch of the ground to be covered, with frequent references to the works of Freeman, Stubbs, Hallam, May, Gardiner, Dicey, Anson, Hearn, Bagehot, Traill, Spocock, Walpole, and other writers. The instruction will be given by means of lectures, by frequent recitations, and by lectures given by the students themselves on assigned topics.

6. Sources of English History and the Early History of Historical Writing in England.

One hour weekly, beginning October, 1892.

A systematic account of the materials from which our knowledge of early English History is drawn and of the general nature and contents of the Year-Books, Court Rolls, and other early records, and of the work accomplished by the Record Commission will be given.

Note.—In successive years, Professor EMMOTT proposes to give a course upon Historical and Comparative Jurisprudence, and a course upon the history and principles of the Roman Law and the history of Roman Institutions.

7. Professor WOODROW WILSON, of Princeton College, will give the third series of his lectures on Administration.

Five hours weekly in February and March, 1893.

The lectures in 1893 will be devoted to local government. They consider the general conditions, principles, and historical development of local government as seen in the growth and experience of leading governments; describe local administrative organization in England, France, Prussia, Italy, and the United States in some detail; and discuss the administrative problems connected with the government of the modern industrial city. The course closes with a brief consideration of administrative justice and the European system of separate administrative courts.

8. Dr. JOHN MARTIN VINCENT, Associate in History, will give a course of lectures on the Sources of History, and on Historical Methods.

One hour weekly, through the year, beginning in October, 1892.

The different classes of historical material will be described, and methods of finding, proving, criticising, and using the same in the study and literary construction of history will be discussed. This introduction will be followed by a systematic study of the sources of the history of leading modern states. The chief historians will be characterized and descriptions given of important bibliographical works, collections of chronicles, annals, memoirs, biographies, publications of societies, collections of treaties, state papers, laws, public documents, and other materials which form the historical records of each country. Practical exercises in the interpretation and criticism of documents and writers will give opportunity to apply the theories brought forward and to cultivate the power of historical judgment.

9. Professor MAURICE BLOOMFIELD will give a course of twelve lectures, introductory to the Ethnological History of the Indo-European Peoples, with especial reference to the ethnic character of modern European States.

One hour weekly, beginning in October, 1892.

The themes treated will be as follows: the relation of ethnology to history; the Aryan people, its primitive home, and common character; India, the Vedas, Brahmanism, Buddhism; Persia, the Zoroastrian religion and literature; classical Persian literature; the Aryan peoples on the boundary between Asia and Europe; Greece and the Hellenic tribes; the Italic tribes (Oscans, Umbrians, Etruscans), and the spread of the Latin race through Southern Europe; the Celts with especial reference to their influence upon civilization in mediæval Europe; the Germanic peoples, Germanic mythology, early Germanic literature, the blending of Germanic nationality with surrounding peoples; the Baltic nations; Ancient Prussia; the Slavic peoples; retrospective survey of the individual nations of Europe with reference to their ethnical composition; the non-Aryan peoples of Europe.

10. Dr. CYRUS ADLER will give a course on the

a. History of Israel with special reference to the period of the Exile.

Weekly.

Ten lectures describing the political condition of Western Asia previous to the Exile, the causes which brought it about, and its influence on the Jewish church and state. The lectures are intended to convey to students of history the results of recent Biblical criticism and of modern archaeological discovery.

b. Biblical Antiquities (manners, customs, and institutions of the ancient Hebrews).

Weekly.

A series of eight lectures, four of which will be devoted to a study of the ancient Jewish feasts and their survival and form in the modern synagogue, and four to a discussion of important Biblical monuments.

11. Dr. CHRISTOPHER JOHNSTON will lecture on the History of the Ancient East (Babylonia, Assyria, Persia, Egypt, Israel).

A series of weekly lectures on the Ancient East, with special reference to Biblical History, and embodying the results of modern discoveries in this branch of Oriental research.

12. JAMES SCHOULER, LL. D., author of the "History of the United States under the Constitution," will give twenty-five lectures on American Constitutional Law.

Three hours weekly, in February and March, 1893.

This course will embrace a study of Colonial Charters and State Constitutions, of early National Tendencies, the Articles of Confederation, and the Convention of 1787, with an historical and legal commentary upon the Constitution of the United States and its amendments.

In the following year, Mr. Schouler will lecture on American Political History.

13. Hon. JOHN A. KASSON, LL. D., of Washington, D. C. (U. S. Minister to Austria, 1877-81, and Minister to Germany, 1884-85), will give ten lectures on the History of European Diplomacy.

14. Dr. FREDERIC BANCROFT will give a short course of lectures on American Diplomatic History.

15. Dr. WM. HAND BROWNE will give a short course of lectures on the Early History of Maryland.

POLITICAL ECONOMY AND SOCIAL SCIENCE.

1. Professor HENRY CARTER ADAMS, of the University of Michigan, will give twenty lectures on Finance.

Five hours weekly, beginning early in 1893.

He will consider such topics as public expenditures; budgets; financial administration and control; public domain and public industries; taxation; public debts.

2. Professor JOHN B. CLARK, of Smith College, Northampton, will give twenty-five lectures on the Economic Theory of Distribution.

Four hours weekly, for six weeks, beginning in October.

The course will present a theory of distribution that, in its entirety, is new, though parts of it have been published. It will isolate and separately study the static forces of distribution. It will afterwards make a separate study of those dynamic influences that are dependent on changes in the social structure, and that act, in each particular instance, only transiently. It will show that in a social state production is a synthesis, the elements of which can be distinguished, and that distribution is an analysis, that tends, wherever natural law has its way, to retrace the steps of the synthetic operation, and give to each contributor his separate product. Production itself, as quantitatively apportioned, is identical with normal distribution. It will attain a law of wages-and-interest by an application of the abused Ricardian principle that, as restricted to the field of the rent of land, has blocked the way to the discovery of the law of general distribution. It will reveal the direction of social evolution.

3. Dr. SIDNEY SHERWOOD will give a course of twenty-five lectures on Money and Banking.

Four hours weekly, beginning in November, 1892.

This course will review briefly the history of money and of the origin and development of banks. Monetary theories, and the more important problems of the day connected with the currency will be presented and discussed. Particular attention will be given to the principles and working of the great banking systems of England, Continental Europe, and the United States.

In Social Science the following courses may be expected:

4. An introductory course of six lectures by President GILMAN.

Weekly, beginning in October.

These lectures will aim to acquaint the student with the scope of modern discussions respecting the principles of public education and philanthropy. Arrangements will be made by which those who desire to do so may visit some of the principal public institutions of Baltimore and its neighborhood.

5. A course of fifty or sixty lectures on current social problems in Europe, by Dr. E. R. L. GOULD, for several years past in the service of the U. S. Department of Labor.

Three hours weekly, beginning in January, 1893.

This course will comprise a comparative review of social legislation in the principal countries of Europe during the past twenty years. An analytical study will also be made of such questions of contemporary importance as the social functions of cities, public assistance, the housing of the working classes, the modern industrial system and its effects upon the family, the liquor traffic in its relation to workingmen, technical and trade education, labor movements, a shorter working day, arbitration of industrial disputes, social insurance, and other topics of general interest from the social economic point of view. The treatment of these subjects will be comparative and practical. While special prominence will be given to Europe, American needs and experience will receive due attention.

6. A course of ten lectures by Dr. AMOS G. WARNER, Superintendent of Charities in the District of Columbia, upon Charities and their Administration, especially upon the relief of the unsuccessful and dependent classes.

One hour weekly, beginning in November, 1892.

The course will touch upon the industrial aspects of natural selection, and will describe what is being done to care for the unsuccessful and dependent classes, and to save the incompetent or semi-competent from dependence. American experience as regards public, private, subsidized, and endowed charities will be considered and the ascertained results of various forms of benevolent work, whether satisfactory or not, will be indicated.

7. A course of ten lectures by Dr. ALBERT SHAW, American Editor of the Review of Reviews, on American Municipal Government and Civic Training.

8. A course of five lectures by Dr. WILLIAM T. HARRIS, U. S. Commissioner of Education, on the Philosophy of Education.

9. A course of five lectures by JAMES MACALISTER, LL. D., President of the Drexel Institute, Philadelphia, on the History and Institutes of Education.

The following topics will be considered: The Renaissance in its relations to education; Comenius and his application of the Baconian philosophy to educational problems; the English Renaissance and the Humanistic movement in England; Rousseau and the introduction of Naturalism in education; Pestalozzi; Froebel; Outlines of the leading European systems of education; the German system; education in France from the period of the Revolution to the present time; the history of popular education in England; some leading questions in public education in Europe and the United States.

Undergraduate Courses.

HISTORY AND POLITICS.

1. Greek and Roman History.

Three hours weekly, from January until June, with Dr. J. M. VINCENT.

2. Outlines of European History (substitute for Course 1).

Three hours weekly, from January to June.

3. History, Minor Course: Herodotus and Thucydides, in translation.

Weekly through the year, with Dr. J. M. VINCENT.

4. History, Minor Course: Livy and Tacitus, in the original.

Four times weekly, with classical instructors, Dr. K. W. SMITH and Professor WARREN.

5. History, Major Course: Church History; Mediaeval and Modern Europe.

Daily through the year, with Professor ADAMS and Dr. J. M. VINCENT.

6. Political Science, Minor Course: Elements of Political Economy.

Daily through the year, with Dr. SIDNEY SHERWOOD.

Three hours a week will be devoted to class-room drill in the principles of Economic Science, the text-books being Walker's Political Economy and Mill's Principles of Political Economy. One hour a week will be devoted to the history of economic theory. Ingram's History of Political Economy will be the basis of this work. One hour a week will be occupied with the application of economic theory to certain practical problems, including money and banking, the transportation system, municipal public works, taxation, and socialism. Essays will be required.

7. Political Science, Major course: International Law and Diplomatic History; English and American Constitutional History. *Daily, with Professor ADAMS and Professor EMMOTT.*

Note.—Graduates with insufficient college training in History and Politics are recommended to take courses 5 and 6. Ability to read French and German at sight is required of all graduates before they can become candidates for the Doctor's degree. Deficiencies in these languages may be made up in undergraduate classes.

PHILOSOPHY.

The Undergraduate Courses in Philosophy provide five hours weekly of required work for one year, under the direction of Professor E. H. GRIFFIN.

(a) Deductive and Inductive Logic.

In this class special attention will be given to the general theories of both Deduction and Induction; to the various forms of thought: notion, judgment, and reasoning; and also to the various methods of scientific investigation and proof, as well as to the application of the rules of the syllogism and the detection of fallacies.

The topics treated of will include the following:

- (1). Province and definition of logic.
- (2). The forms of thought: notion, judgment, reasoning.
 - (a) Terms and their various kinds.
 - (b) The various kinds of propositions or judgments; opposition and conversion.
 - (c) Mediate inference or syllogism.
 - (d) Aristotle's classification of logical and material fallacies.
- (3). Methods of scientific investigation and proof.
- (4). Fallacies incident to induction.

The work in this class will consist of short informal lectures, recitations, themes, epitomes, etc.

Text Books: Jevons' Elementary Lessons in Logic, Fowler's Elements of Inductive Logic, with selected passages from the larger works of Jevons, and from the works of Mill, Bain, Venn, Keynes, and other recent writers.

(b) Psychology.

The instruction in psychology is intended to give a general view of the results of the new methods of study, the recent investigations in regard to the quality and intensity of sensations, the duration of psychic acts, etc.—in general, the subjects treated in Part II of Ladd's Physiological Psychology—being presented with sufficient detail to render them intelligible and interesting.

Especial emphasis is laid upon the facts of conscious experience as known through introspection, the most important end to be secured being, it is believed, such an understanding of the facts and laws of mental life as shall fit one for wise self-government and effective influence. With this view, such powers and states of mind as attention, memory, association, habit, imagination, the feelings, the will, are discussed in as concrete and practical a way as possible. A text book is used as the basis of instruction, but this is largely supplemented by informal lectures, and by references to various authorities. One essay on an assigned subject is required from each member of the class.

A series of lectures and demonstrations on the anatomy and physiology of the muscular and nervous systems is given, as a voluntary course, in the Biological Laboratory.

Text Books: Baldwin's Handbook of Psychology, Sully's Outlines of Psychology, James's Psychology, Höffding's Outlines of Psychology, Dewey's Psychology, Hamilton's Lectures on Metaphysics, Porter's Human Intellect, Spencer's Principles of Psychology, Ladd's Physiological Psychology.

(c) Ethics.

The fundamental problems of ethics and the application of moral principles to the guidance of conduct and the formation of a manly character are considered with special reference to the Christian theory of morals. The great historic systems—hedonism, utilitarianism, intuitionism—and the relation to ethical theory of the doctrine of evolution are discussed with the purpose of enabling the student to reach a just and intelligent view of the grounds and nature of moral obligation. But, while keeping to a scientific basis, the aim throughout is to make the instruction of a directly practical nature, and to show the bearing of the problems considered upon questions of practical ethics.

The subject is taught by lectures, recitations from a text book—Fowler's Principles of Morals, Part II, being used at present—and references to the works of the most important writers. One essay is required from each member of the class.

Text Books: Calderwood's Handbook of Moral Philosophy, Janet's Elements of Morals and Theory of Morals, Martineau's Types of Ethical Theory, Sidgwick's Methods of Ethics, Stephen's Science of Ethics, Martensen's Christian Ethics, Sidgwick's History of Ethics.

An outline of the History of Philosophy is given by Professor Griffin as a voluntary course.

For next year the following advanced courses in Philosophy are offered:

1. Modern Philosophy from Descartes to Kant.
Weekly, through the year. Professor GRIFFIN.
2. Modern Ethical Theories.
Fortnightly, two hours. Professor GRIFFIN.

PATHOLOGY AND BACTERIOLOGY.

The instruction in Pathology is given in the Pathological Laboratory of the Johns Hopkins Hospital, by Professor WILLIAM H. WELCH, Dr. SIMON FLEXNER, and Dr. GEORGE H. F. NUTTALL. The courses are open to physicians, medical students, and advanced students of Biology who have had the requisite training in Normal Histology. Those who lack this training are advised to take a course in Normal Histology, for which opportunity is offered in the Biological Laboratory of the University by Professor Martin and his assistants.

1. Advanced and Special Work. Professor WELCH, Dr. FLEXNER, and Dr. NUTTALL.

Opportunity is provided for advanced work and special research in Pathological Histology, Experimental Pathology and Bacteriology.

The Laboratory is equipped with a large material for investigations in Pathological Histology, with the necessary apparatus for work in Experimental Pathology and with cultures and facilities for bacteriological research. Rooms for photo-micrographic work have been fitted up. There is an ample supply of fresh material from the wards of the Hospital and from post-mortem examinations. Attention is paid to the pathological study of diseases of animals, for which purpose abundant material has been collected. Some knowledge of vegetable pathology is expected from those who select pathology as the principal subject for the degree of Doctor of Philosophy. Special subjects for research will be assigned to those who wish and are prepared to undertake original investigation.

2. Post-mortem Examinations. Professor WELCH and Dr. FLEXNER.

Frequent opportunity is afforded to witness post-mortem examinations and instruction is given in the methods of conducting such examinations and of recording in proper protocols the results. The autopsy theatre is in the Pathological Laboratory.

3. Pathological Demonstrations. Professor WELCH and Dr. FLEXNER.

Fresh material from the Hospital and from post-mortem examinations held in the Pathological Laboratory and elsewhere in the city is demonstrated in connection with the course in pathological histology. Extensive use is made of frozen microscopical sections of these fresh specimens and students are often given portions of morbid specimens to harden and to prepare for microscopical examination. A useful collection of museum specimens is also employed in demonstrating the gross lesions.

4. Pathological Histology. Professor WELCH and Dr. FLEXNER.

Two courses, one beginning in the early part of October and the other the first of February, are given in this subject on three afternoons of the week.

After the study of inflammation and other subjects in general pathology, the pathological histology of the different tissues and organs of the body is taken up in regular order. Microscopical sections are given to be stained, mounted and carefully studied and drawn. The student is encouraged also to cut sections and to become familiar with the technique of pathological histology, and in general to perform as much independent work as his time will permit. Written examinations, consisting in the diagnosis and description of microscopical sections, are held frequently during this course. Those who wish short courses of a few weeks' duration in pathological and clinical microscopy are not advised to come here.

5. Bacteriology. Professor WELCH and Dr. NUTTALL.

Courses in Bacteriology begin the middle of October and the first of February.

These courses consist in practical work in the bacteriological laboratory, which occupies rooms in the pathological building. The student is taught the preparation of culture media, the principles of disinfection and sterilization, methods of cultivating, staining and studying bacteria, and familiarity with the important species of bacteria, particularly those of a pathogenic nature. This department is fully supplied with the requisite apparatus and cultures for bacteriological work.

6. Lectures. In addition to the informal lectures introducing the study of each new topic in the practical courses in the

laboratory, systematic lectures are given by the staff of the Johns Hopkins Hospital and Pathological Laboratory during the months of January, February, and March in the clinical amphitheatre of the Hospital. These lectures, which are upon selected subjects in pathology, bacteriology, medicine, and surgery, are announced in a special programme issued by the Hospital.

7. Societies. The Johns Hopkins Hospital Medical Society, Historical Club, and Journal Club meet in the Library of the Hospital, one upon each Monday evening, and are open to those working in the Laboratory and to others.

8. Library. The library of the Hospital is supplied with an increasing collection of medical books and periodicals. The leading foreign and American medical journals are taken.

Students in the pathological laboratory are permitted also to make use of the general library of the University and of the special library of the Biological Laboratory, which contains the standard biological works and sets of the more important journals pertaining to biology. The library of the Peabody Institute is also available, and is especially rich in proceedings of learned societies, and other works of reference. The library of the Army Medical Museum in Washington by special arrangement permits books from its unrivalled collection to be sent when desired to the Hospital and Laboratory. The proximity of Washington permits the ready consultation of books in the libraries there and the examination of the valuable specimens in the Army Medical Museum.

9. Publications. The Johns Hopkins Hospital Bulletin, issued monthly, and the Johns Hopkins Hospital Reports contain the proceedings of the Hospital societies, articles by the hospital staff and the results of most of the researches conducted in the Hospital and pathological laboratory. These afford a ready means of publication of original work done in the pathological laboratory as well as in the Hospital.

10. Hospital and Dispensary. The pathological laboratory being upon the same grounds with the Johns Hopkins Hospital and Dispensary, the opportunities are convenient for combining clinical work, attendance upon operations and clinical lectures, and studies in the clinical laboratory with the work in pathology.

CONFERRING OF DEGREES, JUNE 14, 1892.

The public ceremony of conferring degrees was held in the Associate Reformed Church, Maryland Avenue and Preston Street, on Tuesday, June 14, at 5 p. m.

The Trustees, Faculty, and Candidates for Degrees assembled in the lecture room adjoining the Church at a quarter before five o'clock and proceeded to seats reserved for them. The Candidates for Degrees wore the cap and gown prescribed by the regulations.

The exercises were opened by prayer by the Rev. WAYLAND D. BALL, the Pastor of the Church.

Professor EMMOTT presented the candidates for the degree of Doctor of Philosophy, and the degree was conferred by the President of the University. (See list on page 133).

An address to the new Doctors of Philosophy was then made by Professor GILDERSLEEVE.

Professor GIFFIN presented the candidates for the degree of Bachelor of Arts, and the degree was conferred by the President of the University. (See list on pages 133 and 131).

An address to the new Bachelors of Arts was made by Mr. CHARLES MORTON STEWART, the President of the Board of Trustees.

Certificates in Electrical Engineering were given to the gentlemen named on page 134.

Professor ADAMS read the list of the recipients of the Marshall prize and of the other prizes in the department of history and politics. (See page 135).

The honors and appointments of the year were announced by President GILMAN. (See pages 134 and 135).

Music was rendered by the Beethoven Terrace Amateur Orchestra, Mr. EDWIN L. TURNBULL, Director.

At the close of the exercises there was a reception of the graduates of the year and their friends in the parlors of the church.

The Board of Trustees having referred the matter of ACADEMIC DRESS to the Board of University Studies, the latter body has adopted the following resolutions:

Resolved, That every Doctor of Philosophy of the Johns Hopkins University shall be entitled to wear, on all fitting occasions, a gown of the prescribed shape, made of either black silk or black stuff, and a hood made of black silk, lined with scarlet silk and edged with gold.

Resolved, That every Bachelor of Arts of the Johns Hopkins University shall be entitled to wear, on all fitting occasions, a gown of the prescribed shape, made of black stuff, and a hood made of black stuff, lined with white silk and edged with dark blue.

DEGREES CONFERRED, JUNE 14, 1892.

DOCTORS OF PHILOSOPHY.

EUGENE THOMAS ALLEN, of Athol, Mass., A. B., Amherst College, 1887. *Subjects:* Chemistry, Mineralogy, and Geology. *Thesis:* The Reaction between Lead Dioxide and Potassium Permanganate.

WILLIAM WILSON BADEN, of Baltimore, A. B., Johns Hopkins University, 1881. *Subjects:* Greek, Sanskrit and Roman Law. *Thesis:* The Principal Figures of Language and Figures of Thought in Isaeus and the Guardianship-Speeches of Demosthenes.

ROBERT PAYNE BIGELOW, of Washington, D. C., S. B., Harvard University, 1887. *Subjects:* Morphology, Physiology, and Botany. *Thesis:* Anatomy and Development of *Cassiopea Xamachana*.

EDWIN WHITFIELD BOWEN, of Ashland, Va., A. B., Randolph Macon College, 1887. *Subjects:* English, Latin, and German. *Thesis:* An Historical Study of the *e*-Vowel in Accented Syllables from Anglo-Saxon to Modern English.

IMMANUEL MOSES CASANOWICZ, of Montclair, N. J., University of Basle. *Subjects:* Hebrew, Assyrian, and Greek. *Thesis:* Paronomasia in the Old Testament.

STARR WILLARD CUTTING, of Richmond, Ind., A. B., Williams College, 1887. *Subjects:* German, French, and History. *Thesis:* The Subjunctive in the Works of Hartman von Aue.

ALBERT BERNHARDT FAUST, of Havre de Grace, A. B., Johns Hopkins University, 1889. *Subjects:* German, English, and History. *Thesis:* Charles Sealsfield (Karl Postl): Materials for a Biography; a Study of his Style; his Influence upon American Literature.

GEORGE WILTON FIELD, of Brockton, Mass., A. B., Brown University, 1887. *Subjects:* Morphology, Physiology, and Botany. *Thesis:* The Larva of *Asterias Vulgaris*.

JOSEPH ELLIOTT GILPIN, of Baltimore, A. B., Johns Hopkins University, 1889. *Subjects:* Chemistry, Mineralogy, and Geology. *Thesis:* Orcin-sulphon-phthaleins and Trichlorphosphanil.

JOHN LESLIE HALL, of Williamsburg, Va., Randolph Macon College. *Subjects:* English, German, and History. *Thesis:* Beowulf: An Anglo-Saxon Epic Poem, rhythmically translated, with critical annotations.

WILLIAM ASBURY HARRIS, of Richmond, Va., A. M., Richmond College, 1886. *Subjects:* Greek, Sanskrit, and Latin. *Thesis:* Plato as a Narrator: A Study in the Myths.

FREDERICK CLEMSON HOWE, of Meadville, Pa., A. B., Allegheny College, 1889. *Subjects:* Political Economy, History, and Jurisprudence. *Thesis:* A History of the Internal Revenue System.

WILLIAM ISAAC HULL, of Baltimore, A. B., Johns Hopkins University, 1889. *Subjects:* History, Political Economy, and Jurisprudence. *Thesis:* Maryland, Independence, and the Confederation.

HARRY CLARY JONES, of New London, Md., A. B., Johns Hopkins University, 1889. *Subjects:* Chemistry, Mineralogy, and Geology. *Thesis:* Determination of the Atomic Weight of Cadmium and the Preparation of certain of its Sub-compounds.

JAMES LAWRENCE KELLOGG, of Kewanee, Ill., S. B., Olivet College, 1888. *Subjects:* Morphology, Physiology, and Botany. *Thesis:* Degeneracy in the Lamellibranchiata.

CHARLES ROLLIN KEYES, of Des Moines, Iowa, S. B., Iowa State University, 1887. *Subjects:* Geology, Palaeontology, and Biology. *Thesis:* The Principal Mississippian Section: A Classification of the Lower Carboniferous Rocks of the Mississippi Basin.

ELMER PETER KOHLER, of Egypt, Pa., A. B., Muhlenberg College, 1886. *Subjects:* Chemistry, Geology, and Mineralogy. *Thesis:* Action of Aniline on the Chlorides of Ortho-sulpho-benzoic Acid.

PAUL ERASMUS LAUER, of Cleveland, O., A. B., Adelbert College, 1885. *Subjects:* History, Political Economy, and History of Philosophy. *Thesis:* Church and State in New England.

EDWIN SEELYE LEWIS, of Indianapolis, Ind., A. B., Wabash College, 1888. *Subjects:* Romance Languages, Italian, and History. *Thesis:* The Guernsey Dialect.

DAVID JUDSON LINGLE, of Chicago, Ill., S. B., University of Chicago, 1885. *Subjects:* Physiology, Zoology, and Geology. *Thesis:* Vaso-motor Nerves of the Heart.

ALVIN FRANK LINN, of Springfield, O., A. B., Wittenberg College, 1884. *Subjects:* Chemistry, Mineralogy, and Geology. *Thesis:* I. Sulphon-Fluorescein and Related Compounds; II. Some Experiments on the Rate of Oxidation of the three Toluic Acids by Potassium Permanganate in Alkaline Solution.

JAMES ALEXANDER LYMAN, of Amboy, Ill., A. B., Beloit College, 1888. *Subjects:* Chemistry, Mineralogy, and Physics. *Thesis:* The Phthaleins of Ortho-sulpho-para-toluic Acid.

JOHN HANSON THOMAS MAIN, of Baltimore, A. B., Moore's Hill College, 1880. *Subjects:* Greek, Sanskrit, and Latin. *Thesis:* Locative Expressions in the Attic Orators.

FRANK JEWETT MATHER, JR., of Morristown, N. J., A. B., Williams College, 1889. *Subjects:* English, German, and History of Philosophy. *Thesis:* The Conditional Sentence in Anglo-Saxon.

MICHAEL ANDREW MIKKELSEN, of Sioux Falls, S. D., A. B., Luther College, 1886. *Subjects:* History, Political Economy, and Jurisprudence. *Thesis:* The Bishop Hill Colony.

ROBERT MILTON PARKS, JR., of Bedford, Ind., A. B., Indiana University, 1879. *Subjects:* Chemistry, Mineralogy, and Geology. *Thesis:* Action of Methyl Alcohol on Para-diazo-ortho-toluene-sulphonic Acid.

JOHN DYNELEY PRINCE, of New York City, A. B., Columbia College, 1888. *Subjects:* Assyrian, Hebrew, and German. *Thesis:* "Mene, Mene, Tekel, Upharsin."

CHARLES HUNTER ROSS, of Auburn, Ala., S. B., Alabama Agricultural and Mechanical College, 1886. *Subjects:* English, German, and French. *Thesis:* The Absolute Participle in Middle and Modern English.

HARRY LUMAN RUSSELL, of Poyntette, Wis., S. B., University of Wisconsin, 1888. *Subjects:* Pathology, Botany, and Physiology. *Thesis:* Bacteria in their Relation to Vegetable Tissue.

WILLIAM AMASA SCOTT, of Vermillion, S. D., A. B., University of Rochester, 1886. *Subjects:* Political Economy, History, and Jurisprudence. *Thesis:* The Repudiation of State Debts.

WILL BUSH SHOBER, of Baltimore, A. B., St. John's College, 1885. *Subjects:* Chemistry, Mineralogy, and Physics. *Thesis:* Action of certain Alcohols on Para-diazo-benzene-sulphonic Acid.

MARTIN BELL STUBBS, of Philadelphia, Pa., A. B., Haverford College, 1888. *Subjects:* Chemistry, Mineralogy, and Physics. *Thesis:* Nitro-ortho-sulpho-benzoic Acid and some of its Derivatives.

HARRY MAAS ULLMANN, of Springfield, Mo., A. B., Johns Hopkins University, 1889. *Subjects:* Chemistry, Mineralogy, and Physics. *Thesis:* Para-chlor-meta-sulpho-benzoic Acid.

BERT JOHN VOS, of Grand Rapids, Mich., A. B., University of Michigan, 1888. *Subjects:* German, Greek, and English. *Thesis:* Diction, Formal-Style, and Rime-Technic of Hartman von Aue.

On Commemoration Day, February 22, 1892, the degree of Doctor of Philosophy was conferred on

WILLIAM LEVERING DEVRIES, of Baltimore, A. B., Johns Hopkins University, 1888. *Subjects:* Greek, Latin, and Hebrew. *Thesis:* Ethopoiia: A Rhetorical Study of the Types of Character in the Orations of Lysias.

CHARLES LANE POOK, of New York City, S. B., College of the City of New York, 1886. *Subjects:* Astronomy, Mathematics, and Physics. *Thesis:* The Action of Jupiter upon Comet V, 1889.

JOHN CUNNINGHAM ROBERTSON, of Washington, D. C., A. M., University of Virginia, 1885. *Subjects:* Greek, Latin, and German. *Thesis:* The Gorgianic Figures in Early Greek Prose.

(37)

BACHELORS OF ARTS.

HARRY ADLER, of Baltimore.

NEWTON DIEHL BAKER, JR., of West Virginia.

CHARLES GAMBRILL BALDWIN, of Baltimore.

EDWIN BERNHARD BEHREND, of Washington, D. C.

LUNSFORD EMORY BENNETT, of Mt. Washington, Md.

ARTHUR FISHER BENTLEY, of Nebraska.

GEORGE EDWARD BOYNTON, of New York.
 THOMAS RICHARDSON BROWN, of Baltimore.
 ALFRED COOKMAN BRYAN, of Rising Sun, Md.
 CHARLES WEATHERS BUMP, of Baltimore.
 WILLIAM CALVIN CHESNUT, of Baltimore.
 JOHN EDWIN DAVIS, of Baltimore.
 HENRY HAYWOOD GLASSIE, of Washington, D. C.
 LEON EMANUEL GREENBAUM, of Baltimore.
 WILLIAM AUGUST HAUSSMANN, of Pennsylvania.
 JOSE LEWIS HIRSH, of Baltimore.
 MORRIS JAMES, of Kentucky.
 HUGH JUDGE JEWETT, JR., of Glenville, Md.
 THEODORE WOOLSEY JOHNSON, of Baltimore.
 JOHN HOLLADAY LATANE, of Baltimore.
 EDWARD JAQUELIN L'ENGLE, of Florida.
 EARL PERKINS LOTHROP, of New York.
 CHARLES WHITNEY MIXTER, of Massachusetts.
 WALTER ALEXANDER MONTGOMERY, of North Carolina.
 JAMES FLACK NORRIS, of Baltimore.
 THOMAS DOBBIN PENNIMAN, of St. Denis, Md.
 CHARLES WILLIAM PEPLER, of Baltimore.
 ALBERT MOORE REESE, of Baltimore.
 WILLIAM MILLER ROBERTS, of Baltimore.
 ABRAM BARR SNIVELY, of Pennsylvania.
 JOHN SARGENT STEARNS, of Washington, D. C.
 CHARLES DANIEL STEENKEN, of Baltimore.

LEOPOLD STERN, of Baltimore.
 LESTER LATHAM STEVENS, of Baltimore.
 GUSTAV LÜRMAN STEWART, of Baltimore.
 JOHN STEWART, JR., of Baltimore.
 REDMOND CONYNGHAM STEWART, of Baltimore.
 ARTHUR BERTRAM TURNER, of Baltimore.
 HAROLD JOHN TURNER, of Baltimore.
 RICHARD HENRY WILSON, JR., of Kentucky.

On Commemoration Day, February 22, 1892, the degree of Bachelor of Arts was conferred on

JAMES WESLEY HARVEY, JR., of Catonsville, Md.

(41)

CERTIFICATES OF PROFICIENCY IN ELECTRICAL ENGINEERING.

WILLIAM HAND BROWNE, JR., of Baltimore, A. B., Johns Hopkins University, 1890.

HENRY WAKEFIELD FRYE, of Belfast, Me., A. B., Colby University, 1889.

NORMAN CRAWFORD MCPHERSON, of Gettysburg, Pa., A. B., Pennsylvania College, 1889.

ARTHUR JUDSON WARNER, of Marietta, O., A. B., Marietta College, 1889.

EZRA CARL BREITHAUPT, of Berlin, Ont.

HUGH PATTISON, of McDonogh, Md.

GEORGE HENRY HUTTON, JR., of Baltimore.

ROBERT ERNEST HUTTON, of Baltimore.

CHARLES WILLIAM WADNER, of Baltimore.

(9)

RECENT APPOINTMENTS AND HONORS.

The following promotions and appointments have recently been made in this University:

GEORGE H. ENMOTT, A. M., now Associate Professor, to be Professor of Roman Law and Comparative Jurisprudence.

FABIAN FRANKLIN, Ph. D., now Associate Professor, to be a Professor in the Mathematical Department.

EDWARD RENOUE, Ph. D., now Associate, to be Collegiate Professor of Chemistry.

HENRY WOOD, Ph. D., now Associate Professor, to be Professor of German.

ETHAN A. ANDREWS, Ph. D., now Associate, to be Associate Professor of Biology.

WILLIAM B. CLARK, Ph. D., now Associate, to be Associate Professor of Organic Geology.

GEORGE P. DREYER, Ph. D., now Senior Demonstrator, to be Associate in Biology.

SIMON FLEXNER, M. D., now Fellow, to be Associate in Pathology.

C. W. EMIL MILLER, Ph. D., now Fellow by Courtesy, to be Associate in Greek.

GEORGE H. F. NUTTALL, M. D., Ph. D., now Assistant, to be Associate in Bacteriology and Hygiene.

LORAIN S. HULBURT, A. M., to be Instructor in Mathematics.

FELLOWS BY COURTESY, 1892-93.

JULIUS BLUME, of Münster, Germany, late Fellow.

A. L. BONDURANT, A. B., Professor in the University of Mississippi.

ULYSSES S. GRANT, S. B., of Minnesota, late Fellow.

JOHN P. LOTSY, Ph. D., of Holland.

FRANK J. MATHER, JR., Ph. D., of New Jersey, late Fellow.

GEORGE O. SQUIER, U. S. A., of Baltimore, late Fellow.

JOSEPH M. WILLARD, A. B., of New Hampshire, late Fellow.

FELLOWS, 1892-93.

BURLEIGH SMART ANNIS, of Wilbraham, Mass., A. B., Colby University, 1885. *Astronomy*.

LEWELLYS FRANKLIN BARKER, of Baltimore, M. B., University of Toronto, 1890. *Pathology*.

MELVIN BRANDOW, of Hornellsville, N. Y., A. B., Rutgers College, 1888. *Greek*.

ALEXANDER MITCHELL CARROLL, of Asheville, N. C., A. M., Richmond College, 1888. *Greek*.

HARRY MAX FERREN, of Allegheny, Pa., A. B., Western University of Pennsylvania, 1891. *German*.

DAVID HULL HOLMES, of Delaware, Ohio, A. B., Ohio Wesleyan University, 1885. *Sanskrit and Greek*.

ARTHUR JOHN HOPKINS, of Fishkill on the Hudson, N. Y., A. B., Amherst College, 1885. *Chemistry*.

THEODORE HOUGH, of Baltimore, A. B., Johns Hopkins University, 1886. *Animal Physiology*.

JAMES ALTON JAMES, of Hazel Green, Wis., B. L., University of Wisconsin, 1888. *History*.

FRANCIS PLAISTED KING, of Portland, Me., A. B., Colby University, 1890. *Geology*.

EMORY BAIR LEASE, of Cincinnati, Ohio, A. B., Ohio Wesleyan University, 1885. *Latin*.

EDWARD PAYSON MANNING, of Taunton, Mass., A. B., Brown University, 1889. *Mathematics*.

LUCIUS SALISBURY MERRIAM, of Chattanooga, Tenn., S. B., Vanderbilt University, 1889. *Political Economy*.

LOUIS EMIL MENDER, of Clinton, Miss., A. B., Mississippi College, 1888. *Romance Languages*.

MAYNARD MAYO METCALF, of Elyria, Ohio, A. B., Oberlin College, 1889. *Animal Morphology*.

RENÉ DE POYEN-BELLISLE, of Baltimore, Bach. ès Lettres, University of France, 1876. *Romance Languages*.

ARTHUR PERCY SAUNDERS, of Ottawa, Canada, A. B., University of Toronto, 1890. *Chemistry*.

DANIEL GURDEN STEVENS, JR., of Baltimore, A. B., Johns Hopkins University, 1891. *Semitic Languages*.

FREDERICK TUPPER, JR., of Charleston, S. C., A. B., Charleston College, 1890. *English*.

FRANK ALFRED WOLFF, JR., of Baltimore, A. B., Johns Hopkins University, 1890. *Physics and Chemistry*.

MAYNARD M. METCALF, A. B., to occupy the table allotted to this University at the Laboratory of the U. S. Fish Commission, Woods' Holl.

HONORS OF THE GRADUATING CLASS.

UNIVERSITY SCHOLARS.

THOMAS RICHARDSON BROWN.
 LEON EMANUEL GREENBAUM.
 CHARLES WILLIAM PEPPER.
 THEODORE WOOLSEY JOHNSON.
 ARTHUR FISHER BENTLEY.
 WILLIAM CALVIN CHESNUT.
 { EDWIN BERNHARD BEHREND.
 LEOPOLD STERN.
 JAMES FLACK NORRIS.
 ALFRED COOKMAN BRYAN.

HONORABLE MENTION.

EDWARD JAQUELIN L'ENGLE.
 CHARLES WEATHERS BUMP.
 NEWTON DIEHL BAKER, JR.
 LUNSFORD EMORY BENNETT.
 ARTHUR BERTRAM TURNER.
 LESTER LATHAM STEVENS.
 { HENRY HAYWOOD GLASSIE.
 JOHN HOLLADAY LATANE.

HOPKINS SCHOLARS, 1892-93.

FROM VIRGINIA AND NORTH CAROLINA.

Honorary Scholars:

J. S. BASSETT (A. B., Trinity College, N. C.), of North Carolina.
 D. C. BRANSON (A. B., Trinity College, N. C.), of North Carolina.
 E. R. CARICHOFF (A. M., Washington and Lee University), of Virginia.
 J. H. GORRELL (A. M., Washington and Lee University), of Virginia.
 W. R. GREY (A. B., Davidson College), of North Carolina.
 L. M. HARRIS (A. B., Washington and Lee University), of Virginia.
 J. L. LAKE (A. M., Richmond College), of Virginia.
 S. R. MCKEE (A. B., Davidson College), of North Carolina.
 W. A. MONTOMERY (A. B., J. H. U.), of North Carolina.
 GEORGE SHIPLEY (A. M., Randolph-Macon College), of Virginia.
 FRANK SUTER (A. M., Columbian University), of Virginia.

Scholars:

E. T. BYNUM (A. B., Wake Forest College), of North Carolina.
 C. R. DUVAL (B. S., West Virginia University), of Virginia.
 H. A. GREY (A. B., Davidson College), of North Carolina.
 B. C. HUNDE (A. M., Central College, Mo.), of North Carolina.
 E. V. HOWELL (A. B., Wake Forest College), of North Carolina.
 H. R. HUNDLEY (A. B., Richmond College), of Virginia.
 J. M. MCBRYDE, Jr., of Virginia.
 B. S. MITCHELL (B. S., Wake Forest College), of North Carolina.
 J. H. PRIDGEN (A. M., Wake Forest College), of North Carolina.
 B. F. SHARPE (A. M., Wesleyan University), of Virginia.
 T. L. WATSON (B. S., Va. Agric. and Mech. College), of Virginia.

CALENDAR, 1892-93.

The seventeenth academic year begins Saturday, October 1, 1892, and continues till June 15, 1893.

The autumn Examinations for Admission to undergraduate classes will be held on Monday, October 3, Tuesday, October 4, and Wednesday, October 5.

There will be a Christmas recess and a Spring recess.

Commemoration Day falls on Wednesday, February 22, 1893.

FROM MARYLAND.

I. For proficiency in the studies of the first year:

Honorary Scholars—

HENRY SKINNER WEST.
 ELI FRANK.
 { WALTER COX.
 FRANK ROY RUTTER.

Scholars—

{ MILTON REIZENSTEIN.
 SIMON H. STEIN.

II. For proficiency in the studies of the second year:

Honorary Scholars—

SIEGMUND SONNEBORN.
 LOUIS PHILIP HAMBURGER.
 HOWARD BLAKE DOWELL.

Scholars—

{ CHARLES CARROLL SCHENCK.
 MORRIS AMES SOPER.

HONORABLE MENTION.

For proficiency in the studies of the second year:

LEO WOLFENSTEIN, of Ohio.

Ineligible to a scholarship, on account of residence, but equal in rank to the holders of Honorary Hopkins Scholarships.

WASHINGTON SCHOLARS.

FRANK ANDREWS.
 GEORGE STEVENS MAYNARD.

JOHN MARSHALL PRIZES.

For important contributions to historical and political science, published in former years, by graduates of this University, a likeness in bronze of the former Chief Justice of the United States (the gift of a lady in New England), was awarded to each of the persons below named:—

Professor HENRY C. ADAMS, of the University of Michigan, for his book entitled "Public Debts."

Professor CHARLES H. LEVERMORE, of the Massachusetts Institute of Technology, for his history of the "Republic of New Haven."

Professor WOODROW WILSON, of the College of New Jersey, for his book on "Congressional Government."

For an important contribution to historical and political science, published during the current year, by a member of this University:—

Dr. JOHN M. VINCENT, of the Johns Hopkins University, for his work entitled "State and Federal Government in Switzerland."

The prize [\$100] given by a lady of Baltimore, and designated at her request as the Scharf-Birney prize, was awarded to Professor F. W. BLACKMAR, now of the University of Kansas, for his book on "Spanish Institutions of the Southwest."

The prize [\$50] given by a member of the Baltimore Bar for a contribution to institutional or legal history was awarded to Professor C. M. ANDREWS, now of Bryn Mawr College, for his book on "The English Manor."

DATES OF MATRICULATION EXAMINATIONS.

Monday, October 3.

9-10.30 a. m.—English. 11.30 a. m.—12.30 p. m.—Science.
 10.30-11.30 a. m.—History. 3 p. m.—Latin.

Tuesday, October 4.

9 a. m.—Arithmetic and Algebra. 3 p. m.—Geometry.

Wednesday, October 5.

9 a. m.—Trigonometry and Analytic Geometry.
 3 p. m.—Greek.
 3 p. m.—French and German.

THE JOHNS HOPKINS PRESS.

I. THE AMERICAN JOURNAL OF MATHEMATICS.

This journal was commenced in 1878, under the editorial direction of Professor Sylvester. It is now conducted by Professor Simon Newcomb as Editor, and Professor T. Craig as Associate Editor. Thirteen volumes of about 400 pages each have been issued, and the fourteenth is in progress. It appears quarterly, in the quarto form. Subscription \$5 per year. Single numbers \$1.50. Complete sets, Vols. I-XIV, will be furnished at \$70.

II. THE AMERICAN CHEMICAL JOURNAL.

This journal was commenced in 1879, with Professor Remsen as Editor. Thirteen volumes have been issued, and the fourteenth is in progress. Eight numbers, of about 72 pages each, are issued yearly. Subscription \$4 per year. Single numbers 50 cents. Complete sets, Vols. I-XI, will be furnished for \$56.

III. THE AMERICAN JOURNAL OF PHILOLOGY.

The publication of this journal commenced in 1880, under the editorial direction of Professor Gildersleeve. Twelve volumes of about 570 pages each have been issued, and the thirteenth is in progress. It appears four times yearly. Subscription \$3 per volume. Single number \$1.00. Complete sets, Vols. I-XII, will be furnished for \$36.

IV. STUDIES FROM THE BIOLOGICAL LABORATORY.

(Including the Chesapeake Zoological Laboratory.)

The publication of these papers commenced in 1879, under the direction of Professor Martin, with the assistance of Professor Brooks. Four volumes of about 500 pages, octavo, and 40 plates each, have been issued, and the fifth is in progress. Subscription \$5 per volume. The early volumes are out of print.

V. STUDIES IN HISTORICAL AND POLITICAL SCIENCE.

The publication of these papers commenced in 1882, under the editorial direction of Professor Adams. Nine series are now completed and the tenth series is in progress. Eleven extra volumes have also been issued. Subscription \$3 per volume. Complete sets, 20 volumes, will be furnished for \$42.

VI. THE JOHNS HOPKINS UNIVERSITY CIRCULARS.

The University Circulars are published, at convenient intervals during the academic year, for the purpose of communicating intelligence to the various members of the University in respect to work which is here in progress, as well as for the purpose of promulgating official announcements from the governing and teaching bodies. The publication of the Circulars began in December, 1879, and one hundred numbers have since been issued. Subscription \$1 per year. Subscribers to the Circulars will also receive the Annual Register and the Annual Report of the University.

VII. THE JOHNS HOPKINS HOSPITAL REPORTS.

Subscription \$5 per volume. Volume III is in progress.

VIII. THE JOHNS HOPKINS HOSPITAL BULLETIN.

The Hospital Bulletin contains announcements of courses of lectures, programmes of clinical and pathological study, details of hospital and dispensary practice, abstracts of papers read and other proceedings of the Medical Society of the Hospital, and other matters of interest in connection with the work of the Hospital. Nine numbers will be issued annually. Subscription \$1 per year. Volume III is in progress.

IX. CONTRIBUTIONS TO ASSYRIOLOGY AND COMPARATIVE SEMITIC PHILOLOGY.

Professor Delitzsch, of Leipsic, and Professor Haupt, of Baltimore, Editors. Vol. I, Part 1, (368 pp.) Price \$8. Volume II is in progress.

X. ANNUAL REPORT OF THE JOHNS HOPKINS UNIVERSITY.

Presented by the President to the Board of Trustees, reviewing the operations of the University, during the past academic year.

XI. ANNUAL REGISTER OF THE JOHNS HOPKINS UNIVERSITY.

Giving the list of the officers and students, and containing detailed statements as to the regulations and work of the University.

Announcements of proposed lectures, courses of instruction, etc., appear in the University Circulars, or are separately issued as Programmes from time to time.

Description of the Johns Hopkins Hospital. John S. Billings, Editor. 116 pp. and 56 plates. 4to. \$7.50.

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The Teaching of the Apostles (complete facsimile text edition). J. Rendel Harris, Editor. 110 pp. and 10 plates. 4to. \$5.00 cloth.

Selected Morphological Monographs. W. K. Brooks, Editor. Vol. I. 370 pp. and 51 plates. 4to. \$7.50 cloth.

Reproduction in Phototype of a Syriac MS. with the Antilegomena Epistles. Edited by I. H. Hall. \$3.00, paper; \$4.00, cloth.

Studies in Logic. By members of the Johns Hopkins University. C. S. Peirce, Editor. 123 pp. 12mo. \$2.00.

The Oyster. By W. K. Brooks. 240 pp. and 14 plates. 12mo. \$1.00.

An Excursion Map of Baltimore and its Neighborhood. Revised by G. H. Williams. \$1.00.

The Constitution of Japan, with Speeches, etc., illustrating its significance. 48 pp. 16mo. 50 cents.

Essays and Studies. By Basil L. Gildersleeve. 520 pp. small 4to. \$3.50, cloth.

Memoir on the Solpa. By W. K. Brooks. 200 pp. and 50 colored plates. 4to. Price, \$5.00.

Bibliographia Hopkinsiensis. Part I: Philology. 52 pp. 8o. Price, 50 cts.

A full catalogue of the journals and books on sale by the Johns Hopkins Press will be sent on application.

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